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ABSTRACT

The 10 papers in this booklet were presented at meetings of 4 sections within the Division of Special Libraries: (1) "Information Ensurance of a Scientist" (V. Matveyev, USSR); (2) "Linguistic Barriers and Machine Translation" (Stanley Kalkus, USA); (3) "Maps for Planning" (V. I. Zhukov and L. G. Rudenko, USSR); (4) "Development of Atlas Cartography in the USSR" (O. A. Yevteyev and N. Ye. Kotelnikova); (5) "Soyuzmedinform Computer Technology and Soviet Medical Data Bases" (B. Loguinov); (6) "Experiences in Using Soviet Databases in Scandinavia" (Sauli Laitinen, Finland); (7) "The Use of New Information Technologies at INIST-CNRS" (Christian Lupovici); (8) "The Functioning of the Lenin State Library of the USSR Information System on Culture and Arts" (T. I. Lapteva); (9) "Developments in Imaging Technology for Arts Information" (Merrill Wadsworth Smith and Patrick A. Purcell, USA); and (10) "Art Libraries in Cooperation: The Art and Architecture Program Committee of the Research Libraries Group" (Jeannette Dixon, USA). (MAB)

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IFLA MOSKBA 91

57th IFLA GENERAL CONFERENCE MOSCOW, USSR 18–24 AUGUST 1991

BOOKLET 2

DIVISION OF SPECIAL LIBRARIES SERVICES

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O. A. Yevteyev, laboratory chief, the geographical faculty the Moscow university, Moscow, USSR and
N. Ye. Kotelnikova, chief, the cartographic department, Lenin state library of the USSR, Moscow, USSR

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Jeannette Dixon, Hirsch Library, The Museum of Fine Arts, Houston, Texas, USA

Information Ensurance of a Scientist

V. Matveyev
deputy director, USSR academy of sciences' institute of scientific information for social sciences Moscow, USSR

Progress in the socio-economic and cultural development of society is to a large extent associated with the state-of-the-art of science and the efficiency of scientific studies. Amidst problems on the solution of which the quality and content of scientific work directly depends it is necessary to specially single out the ever increasing importance of informational ensurance and the library service. It should be stressed that the completeness of information, its promptness and accessibility are inseparably linked with the level of the informatization of society: the state and development of informational and information-research services; information technology; communication facilities and channels which make up the material and technical base of the information system. In its turn, the efficiency of its functioning is interlinked with the technique and software, with the skill of personnel and the competence of management.

In other words, the content of the informational ensurance of a scientist is reduced to the solution of the problem how to use the main resource of the development of society — the human intellect, human heuristic ability to innovations which radically transform our world and ourselves.

Taking into account all existing socio-economic and cultural differences between countries, regions and research organizations it is significant to indentify the most essential criteria and characteristics which make it possible to describe, on the one hand, the highest standards attained in information support and, on the other hand, national levels in order to determine existing discrepancies and map out the paths of movement towards advanced technology and organization.

Let us assume as the main index in estimating the development of society the size of the national income per capita. Conditions of its reproduction created through the efforts of previous generations are not a constant value. The higher the living standard the greater expenses of society on its maintenance and still greater volumes of all types of resources are spent on the growth of the national income. The overall expenses on scientific and technical re-equipment of all branches of production and services constantly rise. For instance, expenses on science in industrialized countries have come close to three percent of the gross national product. The annual maintenance of a scientist costs here 140,000 dollars and continues growing constantly to ensure new advances on the path of progress. According to n. Resher's formula to increase the number of scientific discoveries by 2 times with respect to the attained level it is necessary to spend by 100 times more resources than before and to triple them the volume of resources by 1,000 times greater will be needed.

Under the interconnected impact of the scientific and technical factor essential shifts are taking place in the structure of the national economy and in the employment sphere. For instance, at the beginning of this century 62 percent of working Americans were employed in industry and agriculture. At present less than a quarter of working people is employed in these sectors while three-fourths of the population work in branches which are not production ones, including half of the workforce in the information sector. In other words, the ever accelerating shift of the bulk of resources is carried out to the sphere of science, information and culture. In its turn, their socio-economic role increases in creating conditions and prerequisites for smoothing out conflict situations and for overcoming crisis phenomena maturing within society. Of not less importance is the fact that with the maintenance of the development of the non-productive sphere, scientific and information activity the gap between developed countries, powerful corporations from the entire remaining mass not only retains, but is increasingly widening. Only the limited range of companies and states can invest huge resources in the development of modern branches. For example, IBM expenses on research and development have reached 4 billion dollars. Expenses on information and information-library support of science and a scientist are increasing still more rapidly. In this connection the following conclusion can be made: the dynamics material, financial and labour resources annually earmarked and directed for the maintenance and further re-equipment of national information systems, and the ensurance of their correspondence to modern world standards becomes a guarant of the irreversibility of socio-economic growth. And vice versa, with the forgetting of the interests and requirements of the development of information service stagnation and degradation in society are provoked.

Being the initial and, therefore, the key link of the mechanism of intensification and modernization, the information system extends its renewing effect on all components of social progress: the personal factor, accelerating the increase of their constructive capacity with the least (than usual) expenses, with the careful attitude to nature, resources and man's productive force. If we are guided by such approach, the conclusion should be drawn that the state of the information system, its capacites — to meet in the fullest volume the wide and multifaceted range of requirements — are tur-

ning today into one of the most important objects of attention by society and the state and the priority direction of managerial activity the disregard of which is fraught with deep socio-economic upheavals.

Stable delusions under the impact of which the underestimate of the role and importance of the development of the information system boil down to the following:

— the denial of the direct interconnection of the effective information system corresponding — in the main parametrs — to operating world standards and the growth of the national income;

— the shift of priorities of social development from the personality, the growth of the cultural and scientific potertial to the boosting of branches of material production.

It seems that explanations of the above-mentioned delusions can be found in the low levels of socio-economic development, of the socialization of production, in the insufficient involvement of the spiritual potential, science and the personality of the scientist in the national economy. This gives rise to the putting of the tasks and aims of the mastery of modern models of the modernization of the economy, of the new methods of management to the background and to the far-off perspective. Scientific information components play a prominent role here. They ensure the opimization of all spheres of social labour, the mastery of advanced technologies, ideas and experience. When such approaches are predominant, information systems and their development prove to be devoid of necessary and sufficient resources which finds its expression in all li 'ts and components of this system. Let us tern to shaping base information, to the completeness of the acquisition of books and periodicals. The direct correlation between the quality of information support and the acquisition level is obvious. However, only a limited number of countries possess opportunities, primarily financial, sufficient for this. If the obligatory receipt through various channels of at least one copy of scientific publications published in any country is the firm rule of shaping information resources, up to now for most of the countries and major scientific libraries the receipt of the whole mass of publications remains an unsolved problem. Of special importance in the information support of a scientist are scietific journals, materials and reports of scietific conferences, symposiums, discussions and limited editions. Monographs most often are less informative than periodicals since the former are generalizations of ideas, results and experience which have already been reflected in scientific journals. Processes of mastering new knowledge and advanced practice are to a large extent associated with their involvement in national and — through them — international information resources accessible to the broad public. However, the inadequate coordination of information exchange relations, losses in controllihg the movement of information flows and limited money are the main reasons for the absence — in scientific libraries — of publications of not only foreign research organizations, but also of national ones, and, first of all, peripheral research institutes and higher schools. The level of their integration into the international and national information systems remains not high. This leads to considerable losses in the information support of a scientist, complicates the propagation of new ideas and knowledge and thier practical assimilation. According to calculations of the All-Union Institute of Scientific and Technical Information (VINITI) only up to 40 percent of the world volume of printed matter important for science come to the Soviet Union.

The next type of restrictions is associated with the overcoming of the language barriers. The emergence and wide distribution of centres of intellectual creativity, national pools of science and culture in developed countries acutely set the problems of the improvement and strengthening of interethnic spiritual contacts, of the creation of conditions for the mass mastery of foreign languages, of the training of experts for abstracting literature published in languages of the peoples of the world, of the development of translation activity, of the expansion of the scale of publishing translated literature. On the other hand, natural processes of the growth of national self-consciousness, the development of national-cultural autonomies, especially in miltilingual countries (for instance, over 100 nations and ethnic groups live in the USSR), the processes of activating mutual enrichment enhance the responsibility of state bodies and national information centres for the bringing of literature to the scientific community. This, in its turn, also calls for additional resources for increasing the number of specialists, creating additional jobs, providing technical facilities and other material expenses.

Of great significance is the problem of reflecting the views of numerous political and public organizations in the conditions of the developing democratization of society, pluralism, through the expansion of the repertory of acquired literature.

The problems of acquiring foreign literature under the conditions of the non-convertibility of the rouble and the limited amount of hard currency are solved by specific methods. Out of half a million of book titles dealing with social sciences throughout the world our institute receives through direct purchases 10,000 to 15,000 volumes, which comprises 2-3 percent of the overall flow of literature. Since the limited amount of money resources is typical to this or that extent for the overwhelming majority of libraries the institute is working out the strategy and tactics of the optimum satisfaction of a scientist's demand. The institute activates such channels of supplementing the stocks as the international book exchange and coordinates purchases between Soviet Libraries. Considerable attention is given to the quality of literature selection and bringing its repertory close to plans of research of scientific organizations. The priorities of the acquisition and the distribution of hard currency corresponding to them are established between the volumes of purcchasing literature for definite knowledge branches. Direct ties with publishing houses are getting wider. Despite the great scale of book exchange (our institute gets two-thirds of the overall book exchange) the quality of literature due to unavoidable losses in promptness, the instability of exchange contacts and various shortcomings is con-

siderably inferior to direct purchases. This greatly restricts resources of scientific information support of research. The narrowing framework of acquisition persistently requires the improvement of the coordination of the order and the purchase of literature within the Academy of Sciences, the Moscow region and the country at large.

The structure of the passage of the order is complicated and bulksome. Mediatory organizations servicing purchasing and exchange processes work with great intensity: communications, transport, information networks make the receipt of information more expensive, complicate and lengthen the path of the movement of printed matter from a publisher to a library and information centres. As a result, not more than one third of books from the overall volume of publications of the current year prove to be at the table of the scientist. A six-month lag in the reception literature — such is today's payment for the inefficient information system and those resource restrictions which spread to it. The advantage missed due to such a ruinous approach may reach 15-20 percent of the overall increment of the national income.

The next group of problems is linked with the information service of scientists. Here too a considerable polarization in its organization and efficiency is observed. For instance, from the positions of the highest standards the problem of abstracting, the information generalization of the book output and periodicals is solved by our institute most successfully. With respect to such branches of knowledge as economics, history, the state and the law, philosophy, science of sciences, philology and science of literature, sociology, religion, regional development, comprehensive study of the social development of various countries of the world and global problems of our times bibliographic indices abstracting and analytical bulletins and reviews published by the institute serve as a quality guide in the flow of modern literature, revealing the most important sources which contain the estimate of advanced experience and new knowledge accumulated by primary sources. However, despite the large scope of this work only up to 6 percent of sources from the total volume of their annual receipt are given detailed information appraisal.

On the other hand, now that computer technique and technology CD-ROM have made information resources closer (which relates not to individual countries but also the whole whold) directly to the researcher a considerable portion of scientists has to make trips spending a lot of time and money on the search for and familiarization with the primary source, on visits to libraries and on work there. The major scientific libraries which have concentrated the main information resources become the natural centre of the scientist's attraction in such conditions. In this connection disproportions between the demand for information sources and the possibilities of libraries to meet it become evere more sharply pronounced with each passing year. Under such conditions the criteria of selecting readers for maintaining the optimum conditions of their work in reading rooms, the singling out of priority categories, differences in the content of the service as regards the completeness of meeting the requirements and promptness become the unavoidable reality. Thus, scientists who begin their careers turn out to be in the most difficult conditions which cannot but affect their creative progress. Not to much for solving problems as for their smoothing out institute uses more vigorously than earlier the library network, redistributes the flows of the service between the institute's library and its departments at 23 humanitarian institutes of the Academy of Sciences system.

With 400 seats in reading rooms of the institute's library the number of readers has reasched 50,000 of whom up to 30,000 are regular readers.

New problems in servicing the scientist crop up due to development of information technology, microelectronics, means of automation and their wide application in intellectual activity. Bibliographic, statistical, prognostic and other information systems transform computers into tools of obtaining new knowledge, determine the advent of new lines in research. We are witnessing the development of expert systems. They concentrate the highest level of presenting knowledge by computers reached today. The informational and cultural environment of international culture of the future is rightly associated with their development. The interaction of information users and information systems is simplified.

The expansion of international cooperation, the increasing interaction of information systems give rise to numerous methodological, technical, culturological, legal and other problems which call for joint efforts of scientific organizations and scientists in the search for ways and forms of their optimum solution, the working out and creation of a single and sufficient apparatus of the access to information systems, their logical-terminological structure and the elaboration of the common language of information contacts.

At the same time, new thinking, processes of integration and the movement towards the common European home create a new situation, and provide each partner participating in this process with resources sufficient for their successful solution.

Linguistic Barriers and Machine Translation

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ABSTRACT

Linguistic barriers are one of many barriers to communication on an international scale. Machine translations made such progress in the last fifteen years that they should be considered seriously as tools to overcome these barriers. I foresee that in ten years machine translation services will be available to patrons of public libraries. We must consider implementation of this device in special libraries, now. That is the subject of this paper.

There are many different barriers for information exchange, economic, political, technological arrogance, languages to name a few.

Researching the state of art of machine translations and preparing proposal for introducing machine translation as a new service in the Navy library system. I came to the realization that there are two sides of the problem. The computerized linguistics which are involved in development of the translation programs, and then the user side, whether these are individuals, information centers, or libraries. We do not need to concern ourselves as librarians with the programing or development of software, however to make an intelligent decision whether we are interested in pursuing the machine translations at all, and if so what kind of system suits our needs, we need to be aware of what is involved.

It is also interesting to find out what the translators think of machine translations and machine aided translation. Most of them are not responding negatively to introduction of machine translations, the majority view machine translations as a tool as is shown in a recent survey on machine translations conducted by Frost & Sullivan:

Do you view machine translation:

As a threat	As a tool	Other
86	1116	99

Source: Frost & Sullivan

The number of questionnaires sent out in this survey was 2927 and 1289 responses were received yielding a rather high response rate of 44%. The responses indicate that only 16% (182) utilized machine translations in their work, 84% (1107) did not. Of those that utilized some machine translation system, the following is the breakdown of systems used:

ALPS	LOGOS	SHARP	SYSTRAN	WCC	OTHER
64	30	4	31	31	61

Source: Frost & Sullivan

From responses to this survey and other articles published in ATA Chronicle (Journal of American Translators Association), it is clear that translators feel that machine translation will change the way some of them or perhaps most of them work, but it will never replace the human contribution. At the most they fear that unscrupulous manufacturers of PC's and software will dupe naive customers into believing that anybody can produce translations simply by using a machine.

Translators in the United State feel that they must be willing to actively participate in the development and testing of electronic aids, and that developers should use working translators in the development process.

Global communications, business transactions and information exchange have all grown to the point where dealing with people who speak in other languages than our own has become commonplace. The United States may not be the only nation with isolationist technological tendencies, but it probably has those tendencies to a greater degree then most other, because for so long we have been the undisputed technological leader, while we have been the most backward linguistically. The general lack of proficiency in foreign languages, especially among research personnel greatly increases the requirements for translation support if useful foreign technology is to be identified and exploited. Several years ago the United States were the primary source of scientific and technical information, today this

is no longer the case. Scientists in other countries have done extensive research and we can not afford to ignore foreign scientific and technical literature.

Recent data from National Science Foundation indicate that R & D is increasing in all major countries. Although this is true in absolute dollars for all countries, the rate of increase is higher outside of United States. In fact the number of US scientists and engineers, althpugh recovered after a drop, is about the same as a decade ago. The US dominates in the number of science degrees. USSR and Japan dominate in the number of englineering degrees. The US lead in patents and publishing has diminished. According to the National Technical Information Service 30% of technical documents input is from overseas. The National Technical Information Center has acquisition arrangements with foreign government agencies. Agreement with about 50 Japanese government laboratories and major high-tech companies produce 1300 technical reports each year. Linguistic barriers are not a problem exclusively in the U.S. According to some reports the presumed competence of Europeans in a foreign language is usually overestimated and there is a noticeable shortage of competent technical translators everywhere.

In our efforts we did look at other machine translation possibilities, however decided that the SYSTRAN system is best for our purposes, not only for fiscal reasons but also because we believe it can do the job well. But first let us look a what is MACHINE TRANSLATION.

1. **WHAT IS MACHINE TRANSLATION?**

Machine translation is the translation of Human Natural Languages by computers.

1960 First Generation/Word for word replacement.

1970 Second Generation/Extension to sentence parsing

capabilities, by introduction of linguistic rules and

syntactic and semantic information.

1980 Third Generation/Modularity of linguistic components,

limited knowledge of previous sentences (gender cases),

multitarget dictionaries and multisource parsing concepts.

and 2. **WHY MACHINE TRANSLATION?**

cost effectiveness

speed

operational flexibility

constant quality

constant accuracy improvement

We ran into a little problem with the definition of cost effectiveness. Yes, we can easily calculate cost effectiveness of a good machine translation system versus cost of human translation, however how do you evaluate service which was so far nonexistent? Let us remind ourselves of the subject of this paper «Linguistic barriers and machine translations». The objective is to eliminate the linguistic barriers and to enhance our services to scientists and researchers. But the machine translation cost comparison is not altogether without value for our purpose. We do pay for translations occasionally and probably would do so more often if it did not take so much time, effort and money to have documents, articles and other materials translated. The next slide compares the cost of human versus machine translations. The machine translations are about 40% less expensive as human translations. And speed is also a factor, or perhaps for those who already do a lot of translating even greater factor. As the following slide shows, machine translation is at least 4 times faster then human translation. The next table compares both cost and speed of human and SYSTRAN machine translation.

Let me emphasize at this point that i am not endorsing or promoting SYSTRAN system. There are many translation systems, some were listed in the survey by Frost & Sullivan and there are many other systems in use and many more in developmental stages. Historically machine translation systems have been of three major types: direct, transfer, and interlingua. Direct is history, Transfer is presence, and Interlingua is future. This is of course a simplification, but I am not qualified to discuss the computer programming, mathematical linguistics and other related problems of machine translation systems. For our purpose the important facts are that this system (SYSTRAN) has undergone a long evolutionary development over more than 20 years and, at present, is in a very advanced

stage. SYSTRAN started in 1968 with a contract to produce Russian-English translations, now they have French-German, and Japanese-English as well. In 1974 NASA used SYSTRAN to translate materials relating to the Apollo-Soyuz collaboration. Xerox now uses SYSTRAN to translate approximately 90% of its technical documentation and currently SYSTRAN is developing 5 Scandinavian language pairs for Xerox. SYSTRAN claims but I can not verify it at this point, 24 language pairs available and operational at 80% accuracy. The best pairs are English-French and English-Arabic, with Russian-English and French-English considered very good. Experience shows that some types of materials translate easier then other. Hard science Russian translates very well, naval tactics only so-so, and legal materials do poorly because they are mostly interpretive.

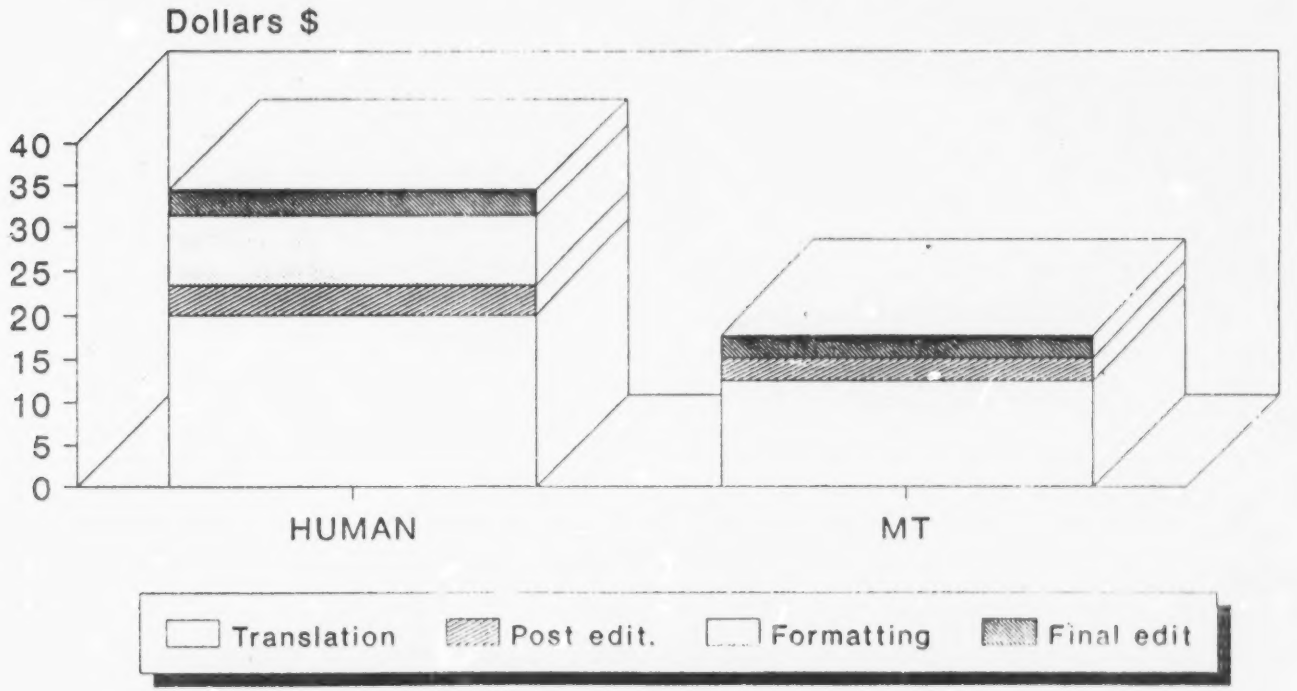
The actual operation of the machine translation program is very complex. About 300,000 lines of instructions are needed for each language pair, including control software, dictionaries, stem dictonary of basic words, idiomatic expressions, parsing to find relationships, analysis, transfer-specific items for each language pair, synthesis and generation. Transfer systems such as SYSTRAN involve a measure of target-language independent analysis of the second language. This analusis is usually syntactic. It allows substituting source language lexical units with target language lexical units in context. Another transfer translation system is EUROTRA.

The Interlingua system uses a common language (Esperanto), the source language and the target language are never in direct contact. The processing in such systems has traditionally been understood to involve two major stages: representing the meaning of a source language text in a language-independent formal language (Esperanto) interlingua, and then expressing this meaning using lexical units and syntactic construction of the target language. Among the systems operating along the interlingua desing are CETA and TRANSLATOR.

Let us return to SYSTRAN and the basic requirements needed to start operating a machine translation service: IBM compatible PC, Hayes-compatible modem, telephone line and a printer which is set up with foreign language fonts, and of course optical scanner is also very helpful. Most of this equipment is presently installed in all our larger libraries with possible exception of a printer with foreign language fonts. There is however another important requirement if you are going to produce translations on a regular basis, such as rapid translation of book titles, table of contents, captions under tables and figures, and on demand translations of articles and reports. The operator of the system should have at least passive knowledge of the language translated from to be able to communicate with the system and make corrections. With 80% accuracy this might not be essential in case of technical translations, copy, edited by human translator can always be requested if the user feels the document is worth the extra effort. After all the human «translators» are sometime also making mistakes as this sign in Zurich hotel indicates: «Because of the impropriety of entertaining guests of the opposite sex in the bedroom, it is suggested that the lobby be used for this purpose». But we still understand the correct meaning.

* COST EFFECTIVENESS

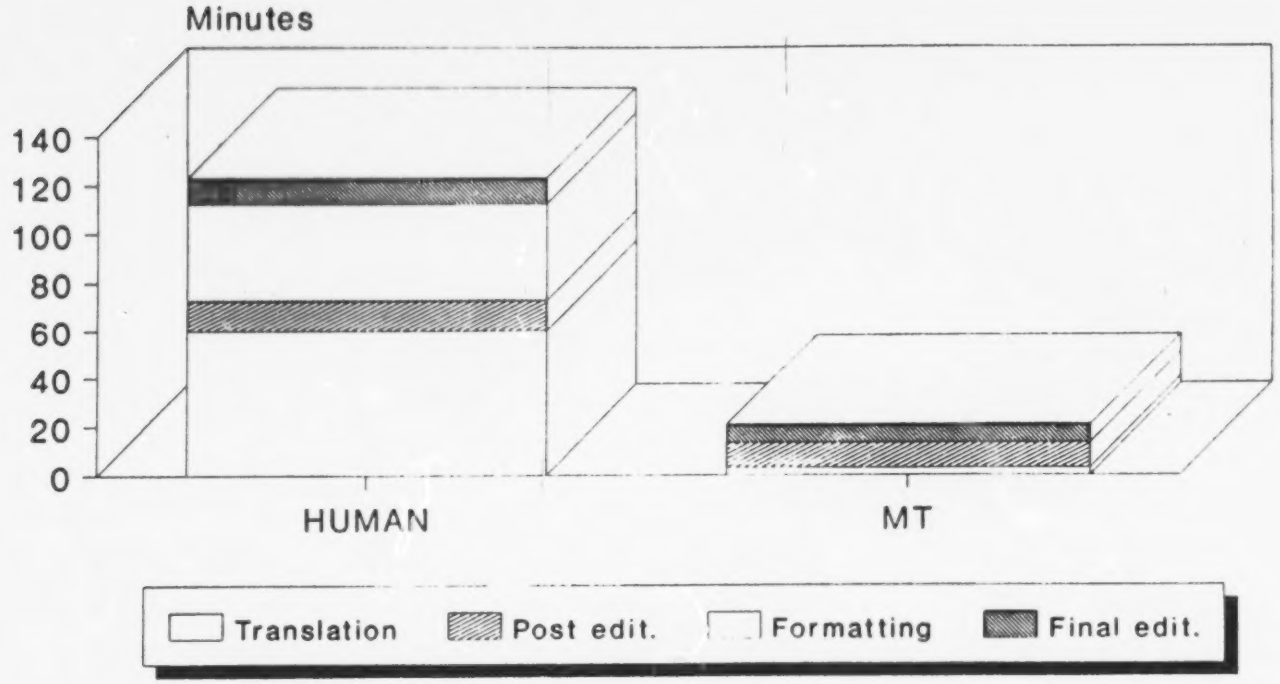
Human Vs Machine Translation



IT IS AT LEAST 40% CHEAPER
HAN HUMAN TRANSLATION

* SPEED

Human Vs Machine Translation



MT IS AT LEAST 4 TIMES FASTER
THAN HUMAN TRANSLATION

Maps for Planning

V.I.Zhukov
professor, chair of cartography, Moscow university, USSR,

and

L.G.Rudenko
leading specialist, institute of geophysics academy of sciences of the Ukrainian SSR, Kiev, USSR

Big changes occurring now in the world economy necessitate the elaboration of a system of information being capable of the satisfaction of all main demands from the management and planning with account being taken of the daily dynamics of social economic relationship, of its medium term and long term trends. The organization of such an information provision is especially important in the USSR, where the restructuring of all links of the economy is happening, new relations are forming between union and autonomous republics the full economic self-dependency, the transition to the territorial cost accounting of regions, distrcits and cities of the country is taking place. This is accompanied by the breakdown of old economic connections, the decentralisation of the economic management of branches and territories, the revision of conditions, forms and directions of the economy and happens against the background of the aggravation of economic, social, political, ecological, national relations between republics and regions. The novelty and dynamism of the occurring processes, the complexity and amenability of the taken decisions raise the interest of all organs of government and planning from the level of the country and union republics to the level of urban and rural Soviets for variegated, actual and territorially concrete information about natural surroundings and resources, the economic potential, the ecological situation, the social infrastructure and other features of the territory regarded as a natural economic territorial complex of a definite hierarchical rank.

Taking these clauses into account one ought to first of all heed the problem of the cartographic meeting of the needs of the planning of the national economy whose role and functions is augmenting immensely under new conditions. This is explained by unique properties of the map and by enormous possibilities of the cartographic method of research, by the transition of the cartography to the way of the automation and geoinformation, of the broad use of the data of the distanse sounding, of the complex application of the system approach, of the rise of the rapidity of the elaboration of maps and the provision of users whith them. But in practice of the compilation of maps for the planning the mentioned possibilities are utilised extremely insufficiently. The elaboration and systematic consistent realisation of a perspective programme of the cartographic satisfaction of the demands of the branch and territorial planning whith regard to inquiries from all its links and level are necessary for a radical improvement of the state of affeirs. A special attention must be paid at that to a broad introduction of the attainments of the scientific and technical progress in the cartographic science and practice which will allow to go over to the system research into natural economic territorial complexes, to the all round and purposeful mathematic cartographic modelling of processes occurring in them, to the creation of more objective and scientifically grounded evaluating, prognostic and other cartographic models on the basis of the use of computer data bases and automated cartographic systems.

All this can be organised only on a new level of the information securing of the cartographic activities within the framework of geographic information systems complexing cartographic, aerospace, statistic and other sources of information in machine data bases conjugate with automated cartographic systems.For the fulfilment of this there are considerable theoretical, methodological centres of the country, for exemple, in the Moscow university where the automated cartographic system AOS-MGU tested in the case of the formation of data bases and of the automated cartography of the Moscow and other regions of the country is operative.

Such an approach will save from the necessity of a profound stady of many questions of the information securing of the process of the creation of maps for the sake of planning as practically exhaustive information about the territory will accumulate within the framework of universal geographic information systems. In addition to it separate information massifs with the data which are necessary only when composing maps for the planning can be created. The elaboration of such geographic information systems must without fail procede within the framework of a united general state programme. This will assure the concordance of the structure and contents of the geographic information systems on all territorial levels.

The use of the materials of the aerospace surveying whose significance is rather large for the investigation of the territorial localisation and of the interaction of objects and phenomena of the nature and economy, of their contemporary state and change in space and time engenders a special problem while creating geographic information systems capable of ensuring the automated projecting

and of compilng maps for the planning can be created. The eloboration of such geographic information system must without fail procede within the framework of a united general state programm. This will assure the concordance of the structure and contents of the geographic information systems on all territorial levels.

The use of the materials of the aerospace survey whose significance is rather large for the investigation of the territorial localisation and the interaction of objects and phenomena of the nature and economy, of their contemporary state and chang in space and time engenders a special problem while creating geographic information systems capable of ensuring the automated projecting and of compiling maps for the planning. Big work is in store touching the selection and classification of geographic information systems of specific indices capable of providing the process of the mathtematic cartographic modelling with all initial parameters, of saturating the maps for the planning with indispensable natural resource, ecological, social and other information.

Withing the framework of geographic information systems all data used while composing maps for the planning form definite subject files in computer data bases. They are furnished with a special control systems and packages of applied programmes of the mathematic cartographic modelling and the automated cartography. Let us mention that the specificity of the maps for the planning and of the methodology of their creation necessitates the elaboration of special solutions of many questions of the programming and automated cartography.

From the system point of view it must be conjugate with the solution of arising methodological and practical questions of the cartographic ensuring of the planning of the national economy, including the revision of subjects and contents of the maps, the improvement of their types and kinds with account being taken of new inquiries from organs of the management and planning. Many organisation, legal, production, technical, commercial, coordination aspests of the cartography are liable to reinterpretation. Big work lies in wait touching the extension of the theoretical and methodological fundamentals of the cartography insluding the specification of the used terms and nations, the selection of objects, units and indices of the cartography, the foundation of the map scales with regard to the perfection of the methods of the creation and use of maps for the planning.

Ensuring the greatest efficiency of the planning and the foundation of the proposed plan decisions necessitates the perfection of its scientific fundamentals, the modernisation of the methods, of its fulfilment in conjunction with the solution of the problems of the cartographic ensuring of planning tasks. It is possible only if one regards the planning objects as complicated territorial systems and resorts to the principles of the system cartography. On all territorial level of the planning it is importend to elaborate and keep a certain work succession at that where the creation of the maps for the planning sets in regularly only after the clearing out and analysis of the problem to be solved and after the determination of specific goals of the research. By means of the systems analysis a target investigation of the territorial or branch systems to be studied, the exposure, modelling, diagnosis of its elements and of their interrelationship, analysis and prognosis of the development of the systems in time and space are conducted. In particular needs of resources are determined conditions ensuring the development of the systems are elaborated, the planned conditions and scenarios of the development of the system are analysed, the most acceptable versions are chosen. The plan decisions reflected in series of maps are utilised for the selection and specification of the solution of the development of the geosystem being realised whose filfilment is controlled also with the use of the cartographic research method.

Thus diverse maps including basic maps, research map-tools, map-decisions and others are used in the planning. They are made avail of on all levels of the territorial hierarchy of the planning and they ensure the solution of the tasks of the current, short term, long term planning and prognostication. Depending on directions of the planning (planning the development of the sphere of the material production and of the non-production sphere, the protection of the nature and the rational utilisation of resources and so on) the cartography covers certain elements and subsystems of the general natural economic territorial complex being integrated in structural, resource maps, maps of the ecological state and the protection of the environment, maps of the conditions curtailing the development and functioning of the natural economic territorial complex, maps of the functional zonning of the territory, of the efficacy of the functioning of the complex, of the place of the territorial complex within the territorial system of higher hierarghical ranks and others.

Sets of maps of every group their subjects, contents and ways of their compilation will vary proceeding from the specificity of the natural economic complex and planning tasks. In the general case the necessity of compilation of two main types of maps-basic and operative maps. The aggregate of the formers ones renders a fundamental complex characteristic of the territory and therefore it serves as basic cartographic information while solving diverse tasks of the planning and prognostication. The operative maps exist independently or as supplements to basic maps, they represent objects of planning and management according to data for a year and even shorter spans of time. First and foremost these maps are composed on the basis of the current statistics, of the materials from the aerospace survey and of other information sources being steadily refreshed. Therefore the solution of the problem of the automated rapid creation, reproduction in quantity and dissemination is especialy important for them.

Although the subject of the basic and operative cartography is the same — the formed or shaping natural economic complex on a territory, based on the availably social economic potential, the used kinds of resources and formed or shaping connections —but the approaches to its cartography

are fairly different. For the basic maps the cartography of stable and steady structures and connections of dynamic trends and forecasts, of generalising regime and other similar characteristic with the utilisation of synthetic typologies and classifications attains the greatest importance. That is why information imported by such maps does not lose its actuality within several years. First of all the operative maps make use of momentary and current changes, therefore they are actual withing a very short time, afterwards they already have historical significance.

Besides the necessity of ensuring the system mode of the scruting of the objects of the cartography and of the automation of the creation of maps it is impartant to take account of many other trends, which are specifically important and actual for the modern stage of the social, economic, political development of our country. With regard to the maps for the planning general emphasis is directly to be laid to the man including the description of his health, social and economic wellbeing, national traditions, his religious faith and political convictions. Therefore the characteristics of the duration of the life, of the birth-rate and the death-rate, of the sick rate, of the evaluation of the social tenseness and the criminogenous situation, of national strifes and so on are to be used wider in the maps for the planning. It is important to disclose the social economic, national, political causes of the observed destabilising phenomena and processes at that, especially in the regions of social economic calamities and ecological disasters.

Under the conditions of the rise of the economic self-dependency of the republics and regions the elaboration of new principles of the economic and political organisation of the Soviet Union raises the problem of the compilation of all-union and republican maps representing fundumental subjects of the economy and the social development in a generalising territorial foreshortening (of regions and districts) anew. On this level it is important to show not only the placing, qualitative and quantitative indices of the natural and economic resourses, favourable conditions of the economic mastering of the territory but the degree of the formation, the specialisation and the spatial structure of the territorial production complexes, the system of the shaped social economic relations touching labour resourses, raw materials, complecting materials and the finished articles too.

With the transition to the level of the cartography of greater economic regions the role of the characteristic of the reached level and of outlooks of the development of the intrarepublican and interregional division and cooperation of labour, of the social and economic interrelationship within the all-union, interregional and international exchange, of trends of the change of the forms of the economy and property, of the departmental and territorial subjugation of the economic and social objects, of the priority directions of the placing and development of the productiv forces including the social reorientation of the industry, agriculture, transport, service, of the limitation of the production requiring the exspenditure of much labour, land, energy, of the reconstruction and modernisation of plants with ensuring a high ecological security and economic profitableness of the production grows. Owing to the necessity of the search, account and full utilisation of any additional possibilities of the development and of resources of the need of learning resources and conditions of the social economic development of other republics and regions with which interrelations and interactions including issues of the ecological security, of relations between nations and so on exist or may exist is building up.

For the social economic cartography on the regional and local levels systems of maps will be required and they will have to more concretely represent urgent problems and tasks of the social economic development of different settlements and plants, of administrative districts and other objects of management and economy. Among them let us mention the characteristics of the level of the development, the peculiarities of the placing and efficacy of the industry and agriculture, the needs of the labour and natural resources, the technical maintainance and supplies of raw materials, victuals and consumer goods, the level and concrete positions being provided with local sources of raw materials, energy and other goods and the necessity of purchase (exchenge) from other regions, the participation of the region in the all-union division of labour in the country and the republic, the pollution of the surroundings and the ways of the improvements of the ecological situation.

Development of Atlas Cartography in the USSR

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The formation of the atlas cartography of the Soviet Stat cannot be either comprehended or explained without a historical tie with the creation of complex atlases in Russia. The Soviet school of the atlas cartography continues and perfects the traditions laid by the Russian cartography.

Large complex regional atlases originate in the fundamental work «Atlas of the Asiatic Russia» (1914), which consummates the complex cartography in the prerevolutionary time.

The migrant administration put out «The atlas of the Asiatic Russia» in three volumes with a richly illustrated text attached. For the first time a big set of maps with 62 titles was introduced in the atlas. Two thirds of them were economic maps. A geographic characteristic of Sibiria, the Far East and Central Asia was adduced there in a summary form. The maps of specific governments and regions showing the general picture of the landownership and land-tenure take the main place in the atlas. They reflect the results of the activities of ten years standing of the migrant administration touching the organisation of the land exploitation for migrants. The atlas of the Asiatic Russia has a big significance from the historic and geographical point of view. On its basis the degree of the agricultural assimilation of the Asiatic Russia by the outbreak of the first world war can be judged.

At the same time the album atlas «Agricultural craft» (1914) appears in the main directorate of tillage and organisation of land exploition. It contains numerous cartodiagrams, cartograms, graphs, diagrams accompanied by an explanatory text. The first half is devoted to the husbandry and the second one to the agricultural education, to the dissemination of the agrotechnical knowledge. The maps are notable for the colourfulness and a high quality of the polygraphic execution, but their contents are highly simple: special branch cartograms. The atlas was destined for the demonstration of potential possibilities of the development of the agriculture in the future and it was meant rather for foreign countries in order to enlist new investitions than for the internal use (Preobrazhenskiy, 1987).

Private business men were engaged in the publishing side by side with state establishments. In 1859 the cartographic establishment of Ilyin started its activities, before the revolution it published most school atlases. In the beginning of the 20 th century the publishing house of Marx takes over the leading role in the issue of world atlases. The well known geographer Shokalskiy, one of the editors of the great world atlases of Marx collaborated with this publishing house (1905, 1909).

The Russian geographers and cartographers occupied with the creation of maps and atlases in the end of the 19 th and in the beginning of the 20 th century carried on their vigorous activities after the October revolution embodying the most interesting ideas and intentions.

The new time determined new approaches towards the creation of complex atlases. On the whole the stress was laid on the enlightment of the people. With this purpose new educational atlases were prepared, author's teams pooling efforts of prominent scientists Kaisarov, Shokalskiy, Anuchin, Borzov, Sokolov, Chefranov came into being. In 1924 they compiled «The elementary atlas for the first stage schools». Since 1926 «The geographic atlas» edited by Shokalskiy, has been appearing in mass circulation. It has been put out in 16 and 32 tables. For the first time the atlas, containing 32 tables, has featured physical, soil, ethnographic, ecologic charts of the Soviet Union on one scale. The atlas in 16 tables came out 17 times up to 1933. «The geographic atlas» by Silichshenskiy prepared on the basis of maps for the Soviet encyclopaedia is of indubitable interest (1929). The atlas was a complex world one. Following the methodological introduction the maps of the oceans are inserted, where the volumes of goods traffic and fishery are indicated. For the first time the energetic resources of the world are characterized. The compilers of the atlas have noted the overload of the subject charts and their insufficient clearness.

The development of complex atlases was activated in the end of the twenties and in the beginning of the thirties when the country took the road to the industrialisation. In that time the methodology of the economic cartography was improved, fundamental atlases of the industry of the USSR were elaborated. In 1929 the all-union council of national economy started publishing «The atlas of the industry of the USSR». It consisted of five issues: 1) the qualification (large-scale) industry; 2) the small-scale and home industry; 3) the minerals; 4) the renewed energetic resources and peat; 5) the natural conditions of the USSR and a characteristic of the labour resources (in two parts). The last issues came out in 1931. The contents of the atlas were rich in the statistical material but the economic charts were performed in a schematic way, which did not ensure the accurate territorial locali-

sation of the cartographed phenomena.

The atlas «The industry of the USSR by the beginning of the second five year plan» (1934) was a new step in the cartography of the industry. In comparison with the first atlas of the industry it was built up according to a new principle which amounted to the refusal from the cartogram way in the representation of the cartographed object and to the transition to the portrayal of the placing of the industry by means of marks according to the enterprises with the indication of their output. In the methodological respect it exceeded «The atlas of the industry» of the year 1929 but it suffered from the absence of a general summary map of the industry too.

In the same period complex regional atlases of separate territories were created. Among them «The atlas of the Moscow region» (1933) and «The atlas of the Leningrad region and the Karjala autonomous Soviet socialist republic» (1934) were the most significant. «The atlas of the Moscow region» edited by Baransky and Kamenetskiy was compiled in the Moscow university. The atlas gave an all round description of the region, of the peculiarities of its nature and economy, elucidated the economical and cultural development of the given territory. In the atlas such geographic methods of the cartography were developed which had deen scarcely or even not at all used previously. From the methodological point of view it became a turning point in the Soviet complex cartography.

«The atlas of the Leningrad region and the Karjala autonomous Soviet socialist republic» distinguished itself by a big diversity of subjects, but the choice of the modes of the cartography was rather scanty. The central place in the atlas was taken by the section «The industry» made of thirty bigger and lesser maps indicating the location of the marks in the absolute unbroken dimension.

«The great Soviet atlas of the world» had an enormous significance for the development of the atlas cartography in the USSR. Lenin's instructions concerning the creation of a complex atlas of the world — the completeness of the contents, the demonstration of the phenomena in the historical development — were assumed as basis of its elaboration.

The first volume of the atlas appeared in 1937. It consisted of two parts: 1) a world map; 2) a map of the USSR on the whole. The first part contained numerous physical maps, economic and political maps and the second part contained a characteristic of the Soviet Union of the same versatility. The atlas was notable for its novelty and variety of methods of the cartograpgic representation.

The second volume of the atlas came out in 1940, it contained maps of the regions of the USSR of two types: general geographic and general economic maps. The economic maps of the atlas excelled in extreme complexity and minuteness of the picture of the main branches of the economy.

As for its collection of maps of the USSR «The great Soviet atlas of the world» can be deemed the first national atlas of the Soviet Union.

The compilation of complex atlases recommenced after the second world war. The second congress of the geographical society of the USSR (1947) and the posterior elaboration of theorerical fundamentals of this problem as a multilateral reflexion of natural and social economic phenomena had a significance of principle for the renascence of the complex cartography. Since then the development of the atlas cartography has been bound up with the name of Salishchev who has made a sizable contribution to the creation of several profound world atlas «The sea atlas» in three volumes (1950,1953,1959), «The physical geographic atlas of the world» (1964), «The world atlas» (1954) were high water marks of that time.

«The sea atlas» was conceived as far back as in the prewar years. Shokalskiy spoke about the expediency of the creation of such work in 1939. The book representing a code and a generalisation of a huge stuff for the study of the World ocean and different seas summed up labour of more than 15 years standing.

The first volume of the atlas consisted of navigation geographic charts and it was noted for the shapeliness of the system, the coordination of the scales, the unity of bathymetric and hypsometric scales.

The second volume reflected the aggregate and the interaction of the main physical geographic phenomena in the World ocean.

The third volume dealt with the naval history.

The large desk «World atlas» (1954) was a profound publication based on general geographic detailed maps of all continents and countries of the world. The even coverage by maps of the entire surface of the planet is its strong point. Besides it is the first atlas showing the relief of the sea bed. The production roused vivid interest abroad and therefore its second edition (1967) was put out in two versions — with Russian and Latin inscriptions.

«The physical geographic atlas of the world» was a unique cartographic production. It was composed on the basis of the processing of an enormous amount of new materials and both Soviet and foreign researches took a keen interest in it.

In the USA a translation of its legend and of the explanatory text came out as an independent book in 1965.

«The Atlas of the Antarctic region» published in 1966 was the first complex atlas of the Antarctic continent and of the ocean washing it; it was a stride in the study of the Earth. Its second volume (1969) included general conclusions of the results of Soviet and foreign research of many years standing.

In the postwar years a number of atlases of popular nature have come out in the Soviet Union side by side with fundamental scientific reference atlases of the world. Among them are «The geographic atlas for teachers of the secondary school (1954-1986) the complex «Atlas of the USSR»

(1962,1969,1986), in the last years «The geographic reference atlas» has been appearing (1987).

In the same time union republics have commenced preparing their national atlases. They are «The atlas of the USSR» (1958). «The atlas of the Armenian SSR» (1961), «The atlas of the Ukranian SSR and of the Moldavian SSR» (1962), «The atlas of the Azerbaijanian SSR» (1964), «The atlas of the Georgian SSR» (1964), «The atlas of the Tadjik SSR» (1968). The successful compilation of the atlases of republics has been going on.

Thus the national cartography of the USSR develops on the level of republican atlases.

Since the beginning of the sixties the creation of the regional atlases of territories has been under wide development. Under leadership of Salishchev a problem laboratory of the complex cartography functions at the Moscow university. Large centres of atlas cartography are forming in Leningrad, Irkutsk, Kiev, Tbilisi, Yerevan, Tashkent, Vilnius and others.

The atlases of the Irkutsk region (1962), the Kustanai region (1963), the Transbaikal territory (1962) can serve as examples of regional atlases. The first two atlases been composed by the Moscow university and the last one by the institute of geography of the Siberian branch of the academy of sciences of the USSR.

Fundamental regional atlases are notable for the completeness and diversity of subjects (up to 500 maps), the depth of the elaboration of the geographic cartographic representation of natural and social economic complexes, a high degree of detail and concretization of the picture, the exposure of spatial conformities of a phenomenon, the inclusion of subjects of applied and estimating nature, synthetic maps and others.

Side by side with fundamental atlases numerous regional and territorial atlases dedicated to the local lore and meant for the general public come out in the USSR.

The preparation and publication of «The atlas of the oceans» (the Pacific ocean, 1974; the Atlantic and Indian oceans, 1977; the Arctic ocean, 1980) were a significant event in the Soviet and world atlas cartography. On the whole the atlases convey an exceedingly broad and deep characteristic of the World ocean: from the relief of the sea bead and the structure of the Earth to the transport lines of communication, medical geographic conditions and the placing of the population. In 1986 the fundamental «Atlas of the Arctic region» with an all round characteristic of the given territory came out.

In the eighties the complex atlas cartography has been enriching itself by new methods using the distant sounding of the Earth from space. Results of the application of new methods are recounted in several publications «Natural resources of the central Pamirs on the basis of space survey» (1983), «Natural resources of the Kalmuck ASSR» (1966). They represent series of mutually coordinated subject maps, reflecting the placing, qualitative and quantitative characteristics of natural resources and ecological conditions.

Several complex national and subject atlases «The national atlas of Cuba» (1970), «The national atlas of the Mongolian People's Republic» (1990), «The atlas of the climate and surface water of the MPR» (1985), «The atlas of the lake of Khubsugul» (1989) exemplify fruitful international cooperation.

«The decipherment of many zone aerospace photographs» (1982) «The decipherment of many zone aerospace photographs. The scanning system «Fragment» (1988) created together with the academy of sciences in Berlin can be rated as important methodological text books touching the use of space photographs.

In the last years some profound subject atlases have been put out in the USSR. «The atlas of the lithological paleogeographic maps of the world» (1989) is one of them. The atlas is compiled on the basis of a broad range of maps of lithological formations of the continents (the scale to be 1:25 000000) and the oceans (the scale to be 1:35 000000). Such a global approach has become possible as a result of the fulfilment of a programme of deep water boring. Besides a large published material both on the territory of the USSR and on other countries has been generalised. Legends to the maps are both in Russian and English.

«The atlas of Gondwanaland. Paleotectonic maps» (1987) can serve as an important contribution to the geologic cartograhy. It adduces the latest data about the history of the Earth and shows a picture of its development. New original publications on no par with earlier ones appear. «The atlas of agriculture of the Yakut ASSR» (1989) takes a special place among them. It has generalised an enormous factual material concerning not only the agriculture, but the nature and the economy on the whole.

For the first time the atlas «The health resorts and health resort resources of the Georgian SSR» (1989) has been created. The atlas is versatile concerning its contents, it consists of six sections. They convey a general characteristic of the national environment and acquaint with health resort resources of the republic. A text in three languages — Georgian, Russian, English-accompanies the atlas and owing to that the atlas is accessible to both Soviet and foreign specialists.

The institute of geography of the academy of sciences of the USSR is completing the creation of such profound complex prognostic atlases as «The atlas of the natural environment and natural resources of the world» and «The atlas of snow and ice resources of the world».

In prospect one ought to see the creation of national atlases of the USSR and RSFSR. In particular the new series of the maps of the USSR «For the institutions of higher learning» and a new series of soil maps open up information and methodological approaches to these publications.

Problems, experience, outlooks of the atlas cartography have been generalised in several transactions: on the atlas cartography on the whole (Churkin, 1979), on national atlases (Salishchev, 1960), regional atlases (Salishchev, 1976) and others. Soviet research in national and regional atlases

has won recognition in the world atlas cartography.

The nearest outlooks of the atlas cartography in the USSR are tied up with the system development of the contents of atlases and with the emprovement of their creation.

In the contents of atlases a trend is beginning to show towards the development side by side with factological characteristics of the cartography of the system structure, the interrelationship, dynamics and synthesis of the phenomena, resource and ecological evaluations and others.

Within the methodology of the elaboration of atlases the use of the materials of space survey and of the computerisation with the application of mathematical cartographic modelling, of means of the automation and the digital cartography holds out alluring prospects.

On the basis of the atlas cartography geographic information systems with different contents and territorial coverage must develop.

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37. Природные ресурсы Калмыцкой АССР. - М., Элиста: ГУГК, 1985. — 35 л.карт.

38. Природные ресурсы Центрального Памира по материалам космической сьемки. - М.: ГУГК, 1983. — 107 с.

39. Сельскохозяйственный промысел в России = Industrie agricole en Russie. — Пг., 1914. — 252 с.

40. Физико-географический атлас мира. - М.: ГУГК, 1964. — 298 с.

41. Элементарный учебный атлас: Для шк. первой ступени / Сост. проф. Ю.М.Шокальский и др.; пол ред. В.Д.Кайсарова. — М.: Пг.: Гос. изд-во, 1924. — 20 с.карт.

Soyuzmedinform Computer Technology and Soviet Medical Data Bases

B. Loguinov,
director of the state central scientific medical library, Moscow, USSR

1. Network of the USSR medical libraries

The system of medical information in the USSR aims at meeting informational needs of many medical, health and health-related workers (1.2 million physicians and 100 thousand researchers and teachers are engaged in the USSR health services). The most important element of this system is a network of medical libraries including over 4000 specialized libraries of different level. The structure of this network is presented in fig. 1.

Over five thousand people are working in national medical libraries. The scientific and production association of Soyuzmedinform is the main information centre in the field of medicine which comprises the All-Union Scientific Institute for Medical and Med-technical Information (AUIMI), the Printing plant (PP) and the State Central Scientific Medical Library (SCSML). The SCSML, with over 2.2 million volumes, is one of the world's largest medical libraries. Daily the SCSML provides about 1000 readers with 4,5 thousand documents. Annually 1.7 million pages are copied and 11 million journal page copies are microfished for the network needs. The SCSML makes a centralized acquisition of foreign periodicals for medical libraries subscribing to about 2000 journal titles.

In order to ensure a better selection of foreign books and more effective use of foreign currency allocations NPO SOYUZMEDINFORM regularly arranges book exhibitions of foreign publishing houses during which it makes its own purchases and serves a mediator for other consumers of medical literature.

Besides, the SCSML makes a wide exchange of books and journals with over 1000 foreign organizations from 80 countries of the world. The SCSML receives without fail almost all Soviet books on medicine, transactions of reseach institutes and conference proceedings. Part of this literature is directed to the exchange stock for the libraries network of this country and some developing countries.

The second level of the network is composed of 14 scientific medical libraries of the republics (RSML) which in their turn have their own networks comprising 96 medical libraries of the regions and 3.5 thousand libraries in health facilities and medical schools. The SCSML also functions as a republican medical library of the RSFSR. The leading role in the system of medical information belongs to 100 libraries in medical universities and higher educational establishments as well as to 340 libraries in research institutions.

2. Information — library network conception

From the above-mentioned follows that their is a widespread network of libraries in the country. It needs up-to-date information system ensuring more effective use of the acquired stock by automatic information retrieval and modern means of document delivery to consumers on the basis of computer science and means of telecommunication.

The final aim of the information system consists in providing every user no matter where he is with required literature retrieval and in case of necessity with the originals or with their copies.

Therewith it is very important to ensure that the retrieval includes all domestic and foreign literature and the service-time is minimum.

By our opinion the goal will be achieved, if the following tasks are consequently carried out:

1) The technology of bibliographic data base generation for domestic part of the stock on fixed profile is developed and implemented in the largest libraries.

2) Universal information-library system on the basis of electronic catalogue with teleaccess is developed and implemented in all libraries.

3) Powerful information centre is founded for teleaccess to all including foreign data bases on the territory of the country and abroad as well as for producing domestic data bases on CD-ROM.

4) Telecommunication media is created for library stock users ensuring on-line access to catalogues and electronic data communications.

The first element of the information system may be introduced into Soviet libraries even today on the basis of personal computers.

3. The general scheme of the NPO SOYUZMEDINFORM information technology

NPO SOYUZMEDINFORM is an ALL-Union branch medical information centre and forms a

structural part of the USSR Ministry of Public Health. All three members of the NPO (AUIMI, SCSML and PP) work along the uniform technology which is shown in fig.2.

In the framework of this technology NPO SOYUZMEDINFORM participates in the following activities:

— acquisition of SCSML document stock;

— generation of bibliographic and factographic data bases on medicine and health care;

— publication of information materials (medical abstract journal, reviews and express-informations on various medical and health care fields, bibliographic indexes, Medical Market, a joint Soviet-American journal, and other materials);

— production of audiovisual information;

— information servicing on the basis of conventional library services, information publications' dissemination and use of domestic and foreign data bases in on-line and off-line modes;

— studying the demand in biomedical information;

— sociological studies in the fields of medicine and health care;

— development and introduction of new computer information technologies.

This paper more closely deals wich the automated technology of generation and application of a bibliographic data base for the Soviet medical literature.

4. Integrated technology of Soviet biomedical data base generation

In 1988 a new computer technology was developed and implemented in SCSML NPO Soyuzmedinform which enabled to create a computer data base on Soviet medical literature in the USSR for the first time and arrange wide informational service on its basis.

The technology was founded on the following principles:

1) to ensure the completeness of the data base in relation to Soviet Medical literature

2) integration of library, publishing and information processes within NPO SOYUZMEDINFORM (internal integration).

3) integration with external Soviet and foreign information technologies in the sphere of biomedicine (principle of external integration)

The principle of international integration means integration of the SCSML electronic catalogue process with the publishing process of bibliographic indexes and information process of bibliographic indexes and informayion process of the SCSML readers servicing.

The principle of external integration stipulates the transition to the world widespread system of documents indexing (MeSH), translation of titles into English and provision for the access to the data base on the territory of the USSR and abroad.

The technology is thus designed as to satisfy the following indices:

1) The generation of the computer data base on Soviet medical literature counting 85-100 thousand documents, 60-80 thousand documents of which are translated into English.

The data base includes the following documents:

— 3600 Soviet books;

— 150 medical journals;

— 25000 journal articles;

— 45000 articles from institute transactions and conference papers;

— 6700 dissertations;

— 4500 non-published materials (deposited manuscripts, normative and methodic instructions, translations);

— 10000 informational materials on research ans development;

— 500 algorithmes descriptions and programs in the field of medicine and health care.

This flow involves 95% of all Soviet medical literature.

2) Publication of 100 thousand catalogue bibliographic cards of 1000 copies each.

3) Publication of a weekly index of current literature from the data base in Russian and English (52 issues of 1000 copies).

4) Publication of 10 special bibliographies by 12 issues per year.

5) About 5000 searches in selective dissemination of information.

6) At least 1500 on line searches from domestic and foreign data base.

7) Data-base copying for the library network and other informational centres.

8) Not exceeding of a fortnight period of document processing before input.

9) Provision of original copies by results of computer retrieval and Current index search.

10) Translation of documents into foreign languages by the request of foreign users of the data base. Besides the technology ensure the depth of indexing and low percentage of spelling errors.

Let us see how the technology functions and those problems which had to be solved in the process of its design.

At inital stage all first copies of documents are received by document flow control department where the book and articles are recorded, marked out and coded.

The coding consists in attaching library deposit number where as marking out contains instructions as to the necessity of including the document to the data base fore domestic or external use. Besides the document continuous flow is being regulated here for data base input.

Further on the marked out documents are sent for indexing. From 1990 the Soviet medical litera-

ture is being indexed by MeSH thesaurus of the US National medical librare and additonal descriptors are included to reflect the specificy of the Soviet medical terminology.

It is worth noting that up-till now the Soviet medical literature was indexed by the SCSML list of subject headings. Inspite of all difficulties related to recataloging of numerous medical libraries network and retraining of users, we consider the transition to new linguistics necessary for international standards in reference tools. The main problem facing the SCSML as data base generator consisted in creation of its own bilingual thesaurus needed not only for operation of new descriptors in complicated polyhierarchic MeSH structure but also for continuous refining of Russian equivalents of US terminology. For this purpose a software application package has been designed for DBASE III+ language to fulfil the following functions:

— development of MeSH current version including verification of terms and relations;
— inclusion of national thesaurus;
— verification of non-contradiction of input information and editing of descriptory article;
— development of the main machine dictionaries and thesaurus relations in any language;
— computer generation and output for printing of various thesaurus representation (hierarhic, alphabetic, permutational indexes in any of input languages);
— random retrieval of bilingual thesaurus terms.

At the same time machine base of the bilingual thesaurus is used for English equivalents computer substitution for Russian terms in case of bibliographic base transfer to foreing users. At present time a linguist automated workbench is under development which would increase the quality and efficiency of indexing.

After indexing and translation the documents go to the input and editing department. They are input and edited at automated workbench of bibliographer-operator who fulfils the following menu operations:

— chooses input format for all documents at monographic and analytical levels;
— automatically generates standard bibliographical description for all types of documents in standard size bibliographical cards on screen and on paper;
— inserts editor's corrections to document descriptions.

The input of documents into data base requires high level of dispatcher service organizathion, which provides working schedules for operators, disseminates literature, controls and records activities. This work is performed by automated dispatcher workbench. After document input the information is printed on the bibliographic card which is circulated for the medical libraries network. Simultaneously the current data-base to serve readers and automated publishing system for current bibliographical indexes are loaded. Once a month the information is loaded into retrospective data-base for on-line access. The retrospective base is installed in VNIIPAS located in Moscow and in DIMDI (German Institute of Medical Information and Documentation) situated in Koeln, FRG.

The current data base contains information for the last three months and is maintained on IBM PC-386 with disk memory of 160 megabytes in programming environment including information retrieval system of micro CDS/ISIS and additional software which makes it possible besides retrieval to fulfil the following operations:

— automatic preparation of standard bibliographic card;
— automatic request for original copies and presentation of standard request form on the results of data base retrieval without preliminary search;
— computer generation of current and cumulative bibliographic index;
— data base updating for profile request (selective dissemination of information) and the automatic implementation;
— computer transliteration of Cyrillic alphabet into Latin alphabet;
— data conversion from ISO-2709 format into text format and vice versa and from ISO-2709 format into DBASE format and vice versa;
— computer updating of bilingual polyhierarchal thesaurus for retrival prescription.

The data base is accumulated simultaneously with loading of automatic system for publication operative preparation (Desk-Top-Publishing). The hardware of this system includes scanner, IBM PC AT with 40 megabyte Winchester disk and colour monitor and Hp LAZER JET+. VENTURA PUBLISHER (VP) is used as standard software. In addition DBASE-VP converter has been elaborated. Due to this system a number of automatic bibliographical indexes are being published. The Index of Current Medical Literature in the USSR is one of the basic weekly publications in English and Russian. This index consists of three major parts: document bibliographical descriptions, permutational (keyword-in-context) titles index and author index. At present time the SCSML NPO SOYUZMEDINFORM has installed telecommunication peripheral for the on-line access to domestic and foreing data bases via VNIIPAS. Besides, there are two workstations with CD-ROM technology installed in SCSML which have MEDLINE and DRUG INFORMATION data bases.

5. Conclusion

This paper deals with systemic fundamentals and practical results of computer tehnology development of informational products on the bases of a large scientific library stock using personal computers. We believe that this technology may become a typical element of the general information network of major national libraries developing a unified electronic catalogue, that would function on the basis

of a powerful computing centre firmly ensuring on-line access.

The information-library technology developed in NPO SOYUZMEDINFORM has low cost and high reliability and provides with wide possibilities for informational products production of international standards. All these qualities have made it possible to find a great number of consumers. Suffice it to say that this technology is applied already today in over a dozen national libraries and information centres, the biggest Saltykov-Shedrin library in Leningrad and USSR AT GPNTB are among them.

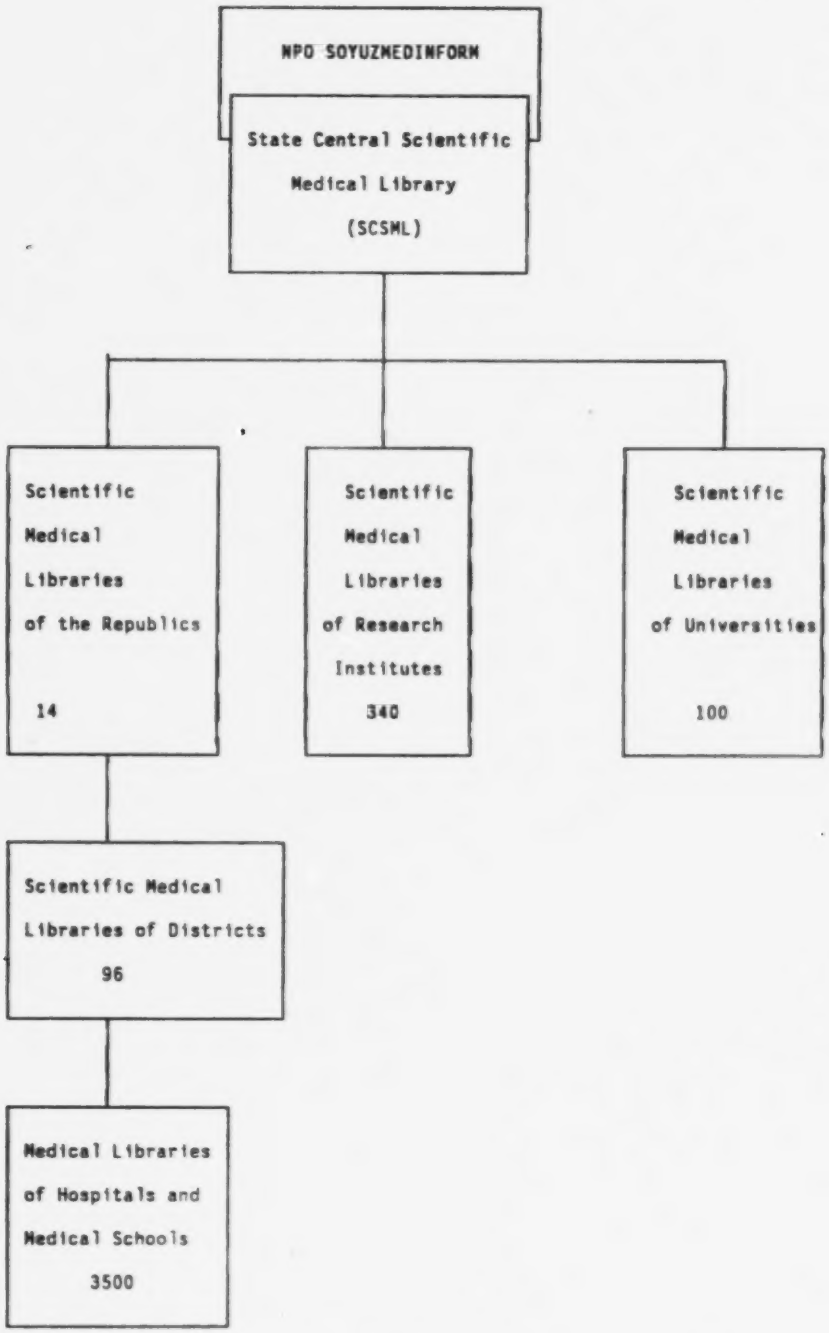
NPO SOYUZMEDINFORM
State Central Scientific Medical Library (SCSML)
Scientific Medical Libraries of the Republics 14
Scientific Medical Libraries of Research Institutes 340
Scientific Medical Libraries of Universities 100
Scientific Medical Libraries of Districts 96
Medical Libraries of Hospitals and Medical Schools 3500

Fig.1 Structure of the USSR medical libraries network

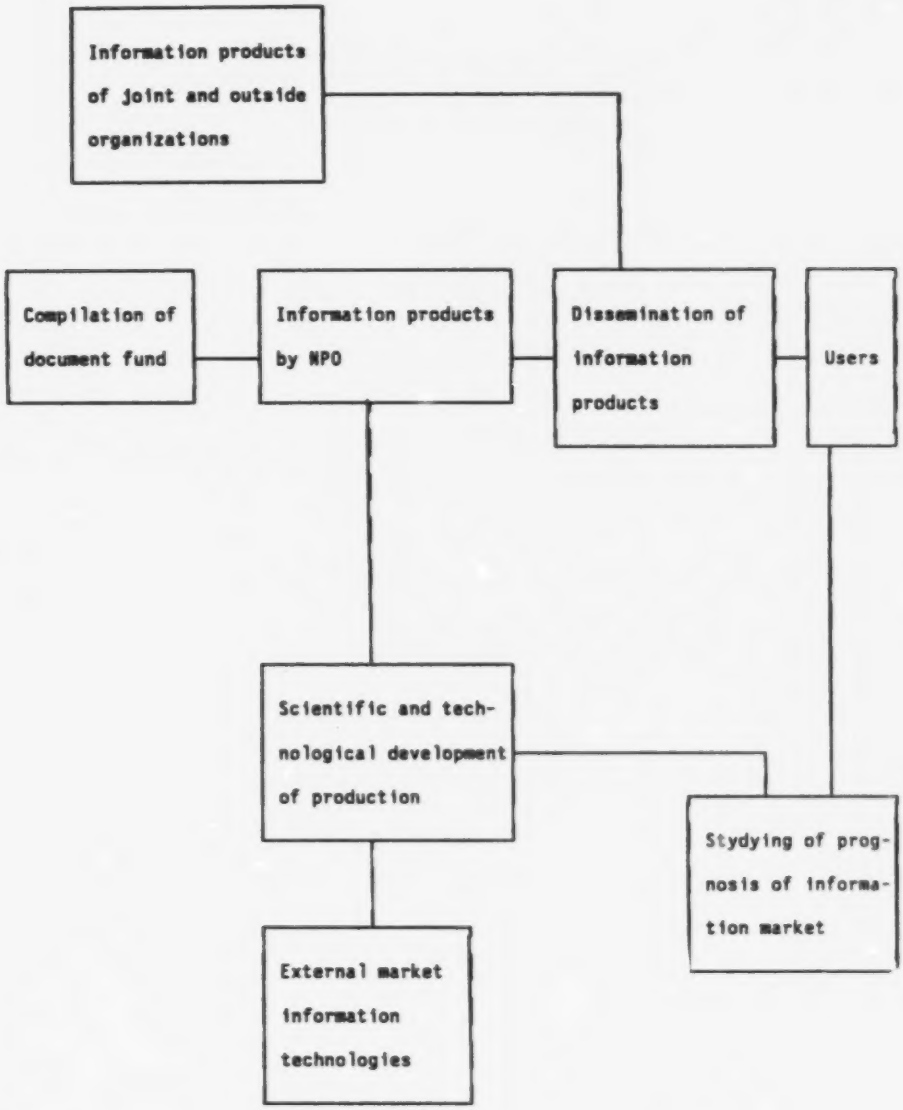
Information products of joint and outside organizations
Compilation of document fund
Information products by NPO
Dissemination of information products
Users
Scientific and technological development of production
Stydying of prognosis of information market
External market information technologies

Fig. 2. General scheme of NPO "SOYUZMEDINFORM" informational technology

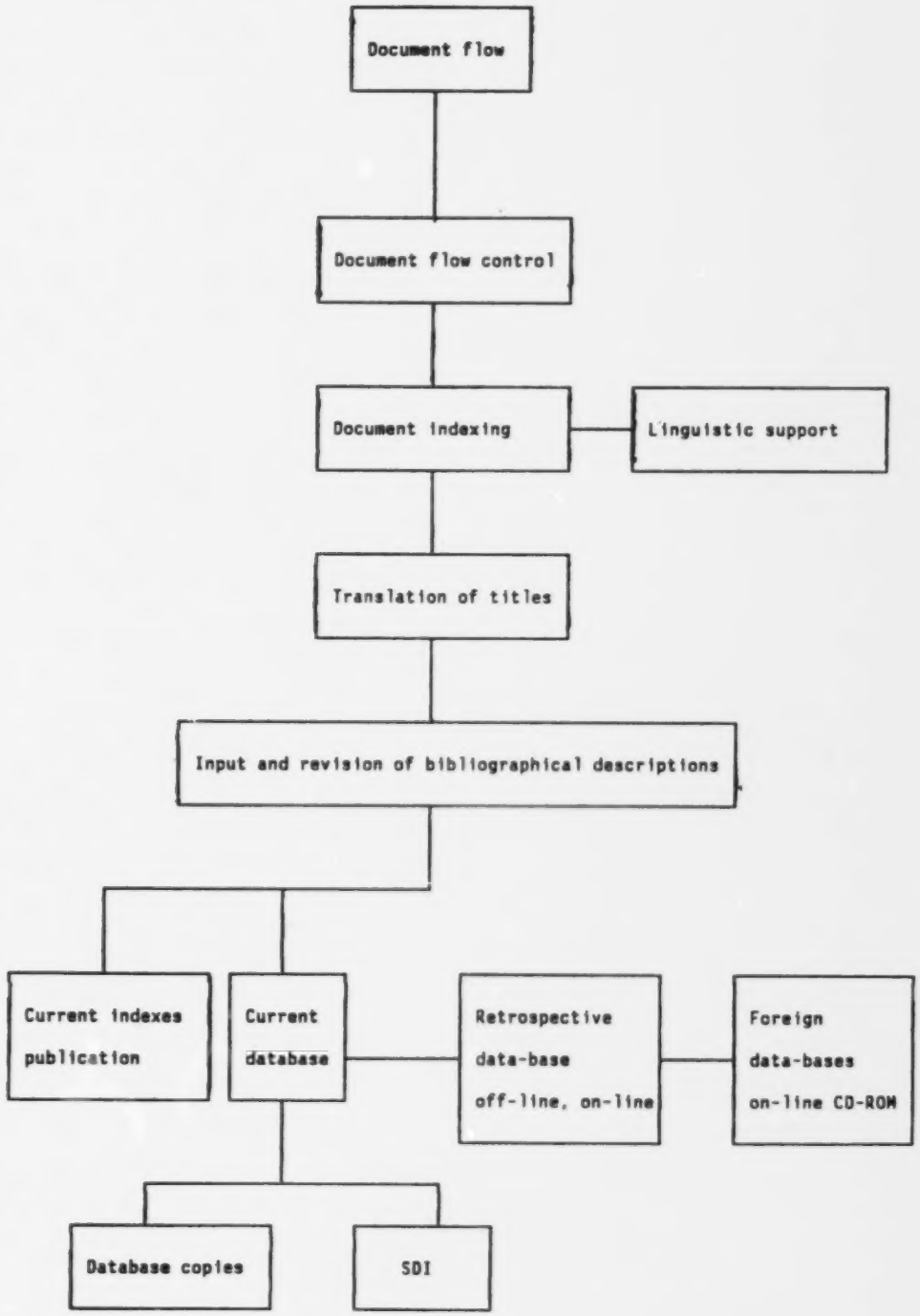

Fig.3 Outline of NPO SOYUZMEDINFORM computer technology

Expertiences in Using Soviet Databases in Scandinavia

Sauli Laitinen
Technical Research Centre ot Finland Information Service

Co-operation between Soviet Union and Finland in the field of scientific and technical information.

Commission for Scientific and Technical Co-operation between Soviet Union and Finland, in Soviet Union subordinated to the State Committee for Science and Technology, in Finland subordinated to the Ministry of Foreign AFfairs, ca. 30 working groups, working group for libraries and information service founded in 1976.

Agreement between International Centre for Scientific and Technical Information (ICSTI or MCNTI) and The Academy of Finland.

Activities coordinated by the working group for libraries and information service.

Exchange of publications, Inter-library loan, Seminars and exhibitions, Contacts between national libraries, Vocabularies and translation, Computer-based information services, Co-operation in the field of computerbased information services, Exchange of information on magnetic tape, Data link between Helsinki and Moscow, Online searches.

VINITI since 1983

INION since 1989

GPNTB since 1990

ICSTI since 1989

Scientific and technical information system of the USSR (This diagram will be projected at the meeting).

VINITI, All-Union Institute for Scientific and Technical information founded in 1952, scans for input each year, 22 000 scientific & technical periodicals, 8 000 books from 130 countries in 70 languages, patents, deposited manuscripts, output ca. 1 200 000 abstracts, personnel ca. 3 000 + 24 000 part time abstractors.

Publications of VINITI

Referativnyi Zhurnal
204 titles, 18 series:

Avtomatika i radioelektronika; Astronomiya, Biologiya, Geografiya, Geologiya. Geofizika, Gornoe delo (mining engineering) Informatika, Matematika, Mashinostroenie, Metallurgiya, Mekhanika, Okhrana okruzhayushchei sredy (environmental protection), Transport, Fizika, Khimiya, Ekonomika promyshlennosti, Elektrotekhnika i energetika. Signalnaya Informatsiya (Current Awareness Bulletin) Itogi Nauki i Tekhniki (Advances in Science and Technology) Ekspress Informatsiya (Express Information) reference, abctract and fact cards (Ftor) reference lists, compilations and quide books on scientific technical information periodicals on library and information science.

Subject coverage of Referativnyi Zhurnal.

The Pi Chart includes the following sectors:

Chemistry	21.0%
Economics	1.0%
Electrical and power engineering	4.6%
Automatics and electronics	6.2%
Astronomy	1.6%
Biology	19.9%
Geography	3.7%
Geophysics	1.5%
Geology	3.0%
Mining	1.9%
Informatics	0.5%
Mathematics	3.1%
Mechanical Engineering	13.3%
Metallurgy	4.3%
Mechanics	2.8%
Environmental protection	0.8%
Transport	4.0%

Physics 7.1%

Use of computers at VINITI

Production system ASSISTENT started in 1969, computers: MINSK-22, MINSK-32, ES 1020, ES 1050, output: magnetic tape for photo-composition, magnetic tape for information retrieval, online search system POISK similar to IBM STAIRS, online databases, different sections by subject and time span available online in different times.

Experiments with the VINITI databases on magnetic tape.

Database chosen, mining technology (gornoyeo delo) project run by the Library of the Helsinki University of Technology with support from Nordinfo, the Nordic Council for Scientific information and Research Libraries, automatic transliteration loading as an online database under the Finnish MINTTU information retrieval system run at the State Computer Centre offered for use in Scandinavia as one of the Scannet databases in 1984-1985, 14 organizations acquired password, usage was low, Feedback from users, difficulties with the language, database too small (1 to 2 years). Conclusion, not enough interest for cost recovery, discontinued after the experiment of one year.

Online use of Soviet databases in Finland

Packet-switching line between Helsinki and Moscow arranged by the Finnish PTT and VNIIPAS authorized by the Soviet Ministry of Telecommunications, Connection of the host computers to the node at VNIIPAS.

Experiments in Finland at VTT since 1983, Terminals with cyrillic keyboard and display acquired.

Online systems used

VINITI (since 1983)

INION (since 1989)

GPNTB (since 1990)

ICSTI (since 1989)

Experience with Referativnyi Zhurnal online.

Potential benefits of using RZ databases, world's most comprehensive abstracting service, good coverage of literature published in Soviet Union and other East European countries, small countries and exotic languages, good coverage of literature on all fields of science and technology. Drawbacks in using the RZ database, lack of knowledge of Russian language, lack of interest in "rare literature" poor technical performance, abundance of information in western databases.

INION, All-Union Institute for Social Science Information.

Computer: Hewlett-Packard, Search system: POISK-4m (MINISIS).

Databases

BIBNEW (economics, philosophy, communism)

BIBSOC (East European countries)

ECON (economics)

HISTORY

LAW

SCIENCE (science on science)

AFRASI (African and Asian studies)

LATAMER (Latin America)

PHILOS (religion and atheism)

LABOUR (international labour movement)

PHILOLOG (literature study and linguistics)

Experiences in using INION databases in Finland

Technical tests at the Information Service of the Technical Research Centre of Finland.

Evalution project at the University of Tampere Library

Project financed by the Finnish Council for Scientific Information.

Customers 25

Searches 36

Connect hours = 10

Examples of topics:
Social scientific issues related to Soviet Union or Russia, Russian language and problems of translation
Evaluation
Information useful for research purposes, good source of information for social scientists and humanists working in joint projects between Finnish and Soviet researchers, students of Slavonic languages, good technical performance

GPNTB, State Public Scientific and Technical LIbrary of the USSR Fields.

Applied sciences, Engineering, Economics.
Holdings — 9 million Soviet and foreign publications incl. unpublished translation, 1,2 million titles in microform, annual acquisition 0.5 million.
Computers: ES series, Search system: CDS/ISIS
Databases: Online, several union catalogues of holdings of libraries in Sovien Union.
Diskettes: several small databases distributed on diskettes.

ICSTI, International Centre for Scientific and Technical Information (MCNTI).

Computer: ES-1057. Search Program: DIALOG-2 (IBM STAIRS)
Databases: International standards (COMECON, ISO, IEC).
MSIS NIR (Technical reports from member countres).
TEI INFORKHIM (Commercial information on chemical industry) ELEKTROENERGA (Electric energy)
TSVETMETINFORM (Non-ferrous metals).
UGOLNAYA PROMYSHLENNOST (Coal industry)
INFORMCHIMMASH (Chemical Engineering)
INFORMSTAL (Ferrous metals)
MSIS-PK (Product information (brochures)
VINITI sections
PISHEPROMINFORM (Food industry)
TERMAL (Thermophysical properties of substances)
Environmentall protection.

Recent examples of co-operation with the west

VINITI — Maxwell Communications, Scitechinform
USSR Academy of Sciences & State Committee for Science and Technology — The American Chemical Society
VINITI — Chemical Abstracts Service
USSR Academy of Sciences — Telebase Inc. EasyDA.

The Use of New Information Technologies at INIST — CNRS

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ABSTRACT

INIST is an information and document supply factory. It was founded in 1988 by the French CNRS. It was started that its information system was to integrate the whole documents processing.

INIST has launched a full automation program which integrates acquisition policy, cataloging, indexing, catalogue and database production. The information is used also to support the document supply management from the users request in electronic form to the document delivery. Two hundred titles of serials have been scanned to be managed in electronic form. Document transmission will be the next step toward a full electronic process.

L'utilisation des nouvelles technologies de l'information a l'INIST

par Christian Lupovici
Chef du Département Gestion et Fourniture des Documents Primaires INIST

INTRODUCTION

L'Institut de l'Information Scientifique et Technique (INIST) a été crème par le Centre National de la Recherche (CNRS) en 1988. C'est donc un organisme jeune bien qu'il soit héritié des deux centres de documentation du CNRS qui étaient a Paris.

La création de l'INIST correspond à une volonté politique affirmée de développer, en France, un centre de création et de diffusion de l'information scientifique et technique qui soit multidisciplinaire et de niveau international, associée à un système defurniture de documents primaires. Pour cela, il était nécessaire de concevoir une chaîne de production de l'information et de fourniture de services, qui utiluse les technologies les plus modernes.

A chaque étape de la production, une technologie spécifique a été adaptée et intégrée dans l'ensemble du flux d'information, depuis la collecte des documents jusqu'à la création des bases de données et la fourniture de documents.

On peut distinguer, dans la chaîne de production de l'INIST, 4 systèmes qui créent et gérent l'information qui leur est spécifique, mais surtout qui réutilisent successivement les informations déjà disponibles dans le systeme d'information:

- la gestion des documents,
- le catalogage analytique et l'indexation,
- l'archivage numérique,
- la gestion des commandes et la fourniture de documents.

1. La gestion des documents

La première partie de la chaîne documentaire se comporte un peu comme une bibliothéque. L'INIST utilise l'ensemble des modules d'un système GEAC 9 000 bi-processeur dont certaines fonctionnalités ont été développées specifiquement pour l'INIST.

Une cinquantaine de terminaux répartis dans les locaux de Nancy et dans ceux de Paris sont connectés à la machine centrale. Mais, il n'y a pas d'accés public à la base GEAC qui est interne.

Même si aucune passerelle n'existe avec les fournisseurs, le module Acqusition est utilisé pour constituer la base des propositions d'acquisition de publications en série, en attendant l'avis des spécialistes du Département Bases de données.

Le catalogage est effectué en format UNIMARC, sachant que les règles de cataloguage s'efforcent de respecter les AACR-2, et, pour les points d'accès, les règles d'écriture de la Bibliothèque Nationale. Le catalogage constitue une étape importante du processus car est ainsi constituée la premiére saisie bibliographique générique des documents de l'INIST. Cette saisie est ensuite réutilisée tout au long de la chaine pour le bulletinage, le catalogage analytique des articles de périodiques ou les communications de congrès, jusqu'à l'indexation documentaire pour alimenter les bases de données PASCAL (en sciences, technologie, médecine) et FRANCIS (en sciences humaines). C'est cette information qui alimente également le fichier du système de fourniture de documents.

Tout document physyque est identifié par un code-barre qui esi attribué lors du catalogage pour les monographies, ou lors du bulletinage pour les fascicules de periodiques. Cet identifiant est utilisé dans le module de prêt, mais également comme début d'adresse sur les disques optiques numériques pour les articles qui sont numérisés. .

Une circulation des documents est organisée et planifiée en fonction des caractéristiques qui leur sont données dans le format bibliographique, en zones locales (9xx). Chaque particularité d'exploition est codifiée dans une zone qui lui est propre.

Ainsi, la répartition des flux de documents peut faire dés le lendemain de bulletinage (ou du catalogage pour les monographies).

Sur les 400 fascicules de periodiques bulletines chaque sur le systèé, les flux se répartissent de la façon suivante:

— 20 % vont partir pour être catalogués au niveau de l'article pour la base de données,

— 20 % vont partir pour être catalogués au niveau de l'article pour la base de données, mais également être numérises.

Le reste est rangé en magasin.

Des listings permettent de vérifier la bonne orientation des documents, et des bandes magnétiques de catalogage accompagnent les documents destinés au catalogage analytique pour la base de données et la numérisation.

Tous les mouvements de documents hours des magasins font l'objet d'une transaction de prêt. Ainsi, non seulement est possible de précisèment les documents en circulation, mais on vérifie que les délais d'exploitation des documents sont respectés, aussi bien pour le catalogage analytique, la numérisation, que l'indexation.

2. Le catalogage analytique et l'indexation documentaire

Le catalogage analytique est sous-traité à une société privée, JOUVE, que utilise un module de saisie formatée, fonctionnant sur des station type IBM/PC. Ce système, appelé PSILOG, est capable de rattacheer chaque description d'article à la description générique des fascicules issue du systèé GEAC et fournire en UNIMARC. PSIDOC a un découpage de l'écran en fenêtres paramétrables et dynamiques. Chaque fenêtre correspond à un champ ou un sous-champ du format. L'efficacité de l'ergonomie de la saisie est complétée par l'efficacité d'un format structuré de type SGML, et c'est dans ce format que les données sont sur le serveur des ingénieurs documentalistes à l'INIST. Ainsi, le catalogage des articles est réparti sur les postes de travail des documentation qui effectuent l'indexation sur écran. Tous les postes sont reliés par un réseau local NOVEL. Progressivement, les bourdeaux d'indexation régressent au profi d'un travail effectué directement à l'écran. Une nouvelle station de travail permentant une gestion locale des vocabulaires avec contrôle de l'indexation est à l'étude.

De plus, une expérience d'idexation automatique des mots du résumé d'auteur a commencé. A partir de documents numérisés, un systèé de reconnaissance de structure de texte isole le résumé et une reconnaissance optique de caractére (OCR) est effectuée. Chaque mot du résumé est alors indexé, puis confronté au vocabulaire autorisé. Les ingéniers documentalistes ont la possibilité d'ajouter des termes et d'en supprimer. Quand l'enregistrement bibliographique est complet, avec son résumé et ses monts-clés, il va alimenter la base de mise à jour de la base PASCAL. Des bandes de mise à jour en format PASCAL standart sont envoyées chaque mois au serveur. Une évolution du format d'échange vers le CCF est à l'étude.

3. La numérisation et l'archivage numérique

L'INIST a choisi un peu moins de 2000 titres de périodiques pour un projet de fourniture électronique de documents primaires. Il s'agit des titres les plus demandés en fourniture de documents. Ils concernent donc la litérature coeur internationale. Les documents sélectionnés sont numerisés (scannés) systéàtiquement et a priori en mode analytique.

En dehors du défi technologique, il s'agit de résoudre plusieurs problèmes à la fois:

a) rendre ces périodiques disponibles en permanence pour la fourniture de documents et pour l'analyse à la base de données;
b) permettre une reproduction des documents rapide et de qualité constante, sans manipulation humaine;

c) permettre un envoi des documents sur des réseaux de télécommunication pour raccourcir les délais de livrasion;
d) gagner de la place en stockage à terme.

Cette numérisation a commencée en 1990 et représente un volume de 4 millions de pages par an. C'est également la société JOUVE qui est chargée de l'opératon de numérisation.

L'INIST réceptionne quotidiennement deux cassettes 8 mm lesquelles sont inscrites les images compressés au standard CCITT Groupe IV en format TIFF. La résolution des images est de 300 points / pouce. de Les images des articles sont accompagnées d'une bande magnétique contenant les données de gestion, servant à retrouver les articles dans la base de données du serveur archivage numérique.

Après des tests de contrôle de structure et de qualité d'image effectués sur des station Powermate, les cassetes sont recopiées sur disques optiques numériques (DON) de type WORM de 6,4 gigaoctets, soit contenant environ 70 000 pages. Les disques chargés dans un juke-box Cygnet pouvant contenir 131 disques avec 2 unités de lecture ATG 60001. Le système, fourni par la société MC2, est piloté par une station SUN 4/370 (sous ORACLE/UNIX) reliée au systèé de fourniture de documents installé sur un IBM 4381. 3 périphériques micro-ordinateurs (Powermate 2) équipées de cartes de télécommunication permettent la transmission à distance par les réseaux publics de télécommunication aux normes CCITT Groupe IV et Groupe III ainsi que la transmission sur le réseau PNIS (ISDN) français, NUMERIS.

Tous les équipements (y compris la liaison SUN/IBM) sont i interconnectés par un réseau local Ethernet.

4. La gestion des commandes et fourniture de documents

Dans le proccessus de fourniture de documents, on peut distinguer 4 phases:

— la commande,
— la gestion des commandes,
— la founrniture,
— la facturation.

● L'informatisation de la commande de document est maintenant quelque chose de banal. La transmission des commandas peut s'effectuer soit par télédéchargement des serveurs (QUESTEL, ESA, DIALOG...) , ou des systèés de messagerie de prêtinter comme celui du PEB en France ou celui de l'OCLC. L'INIST permet, de plus, aux utilisateurs occasionnels de commander par Minitel (VT 200) directement sur son propre serveur, et développe, pour les clients importants, une procédure de transfert de fichiers. Le fichier du fonds de l'INIST, chargé le serveur IBM, permet à la fois la gestion des locations des documents, et sert d'OPAC pour l'acceès à distance par le public. Il donne accès non seulement aux descriptions des documents physiques, mais également aux articles de périodiques. Les commandes par bordereau papier, par fax ou par téléphone, sont saisies dans le système de gestion informatisée des commandes pour que tout soit géré de façon uniforme.
● Le système gère le traitement des commandes. Il les classe selon la cote des documents et les adresse au lieu de stockage. L'adressage prioritaire est le serveur d'archivage numérique.
● Si le document existe sous forme numérisée, il sera envoyé le réseau de télécommunication approprié vers fax Groupe IV ou Groupe III. Sinon, il est imprimé sur une imprimante laser rapide. Si le document n'est pas sous forme électronique, la demande est imprimée à l'étage où est stocké le document papier. Un service spécialisé traite les demandes qui lui sont adressées par le systèé pour résoudre les rejets et les problèés d'identification des documents.
● Tout le processus de fourniture du document est suivi par le systèé y compris l'orientation d'une demande sur une bibliothèque de recours qui donne lieu à l'édition d'une lettre avertissant le client.
● Les donnés concernant la facturation sont saisies au moment de l'expédition pour les documents envoyés par voie postale, et automatiquement après réception pour ce qui est expédié vers un fax.
● Des avis de débit mensuels sont envoyés automatiquement aux clients qui ont un compte de dépôt à l'INIST.

Le systèé est conçu pour que, losque le document demandé est stocé sous forme électronique, il puisse être fourni sans aucune intervention humane, de la commande à l'expédition sur un réseau de télécommunication. De plus, le systèé permet de produire des statiques indispensables pour le suivi de production, mais qui sont également utilis pour l'orientation de la politique de dévelopment des collection del'INIST.

CONCLUSION

l'INIST a pu, à la jeunesse de l'institution, investir dans une chaine de traitement informatisée et relativement bien intétant l'état l'art en 1990.

Deéjà, à ce stade, il est envisagé d'offrir de nouveaux services:

— une revue de sommaire des revues numérisées;
— une intégration de la recherche documentaire, de la commande et de la réception du document sur le méé poste de travail.

Cepedant, le développment de ces noveaux services dépend de la fiabilité de la technologie employée dans la chaîne de production et de l'essor des réseaux de télécommunication, en particulier, des RNIS (ISDN), comme NUMERIS en France, et de leur degré d'interconnexion au niveau international. Elle dépend egalement du développement et du respect de la normalisation des formats et des protocoles. C'est pourquoi l'INIST est attentif à respecter les normes ISO et participe activement à la normalisation internationale. On peut néanmoins être optimiste car la demande est forte et les solutions techniques se banalisent et se rapprochent du seuil de rentabilité.

The Functioning of the Lenin State Library of the USSR Information System on Culture and Arts

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Libraries of the Soviet Union show a traditional interest in questions of culture and art. The country boasts of a large number of libraries specializing in the humanities, the collections of which cover diverse literature in this field.

The Lenin State Library (SLL), being a national library, holds unique publications on different aspects of art and culture. Its stocks comprise 36 million books, journals, annual news paper files, maps, printed music, etc. The Library also holds printed monuments of world culture of the 6 th — 20 th centuries, and has a collection of pictorial printed matter, which numbers a milion items. It includes posters, engravings, popular prints, reproductions, picture postcards, albums, works of applied graphi art, and photographs.

The collection also contains printed music and sound recordings of all times and nations. It also holds a special stock of rare and valuable music editions of the 16 th — 18 th centuries. The traditions of the Lenin State Library as of the leading cultural institution, its unique collections, interaction with the network of special libraries of the country, favoured the creation in 1982 on its basis of the information system for culture and art «Soyuzkultura».

The sources foundation of the system is made up of current domestic and foreign publications in the field of culture, acquired by the Lenin State Library, foreign publications from collections of some specialized libraries of Moscow, and literature sent by national libraries of the Union republics. The processed information is presented in Russian, in other languages of the peoples of the USSR and in European languages.

Users of the «Soyuzkultura» system include scientific and creative workers in the sphere of culture, members of social organizations, employees of government institutions, professors and students of creative institutions of higher learning, practical workers, representatives of the press, engineers and technicians of industrial enterprises in the sphere of culture, etc.

The information system covers the following thematic areas: general problems of culture and art, socio-cultural activies in the sphere of leisure, librarianship and bibliography, museum science, museum economy, aesthetic education, graphic art, music, spectacular arts (the theatre, variety, circus, dancing) the preservation of monuments of history and culture, conservation and restoration of museum pieces and immovable historical and cultural monuments. In a large measure the thematic coverage of the system depends on the problems that are studied by the cultural institutions, which are partners of the LSL in the creation of the special information system. The drawing in of new partners promotes the expansion of the thematic — boundaries.

The system's information production is represented by abstracts bibliographical, factographic and review-analytical information, which is offered to users in the form of bibliographical indexes, information collections, information collections, abstracts express-bulletins, etc. These information publications regularly acquaint specialists and non-professionals with current literature on questions of culture and art, put out in the USSR and beyond it.

Work on the preparation of information publications is conducted in cooperation with the All-Union State Library of Foreign Literature, the State Central Theatrical Library, the Taneyev Scientific Music Library of the Moscow Conservatory, the State Institute for the Designing of Theatre Buildings. «Giproteatr», the All-Union Research Construction and Technological Institute for Technical Means in Culture, the All-Union Research Institute for Restoration, the All-Union firm «Soyuzrestavratsiya», the Central Museum of the Revolution, the State Historical Museum, the All-Union Research Institute of Culture of the RSFSR Ministry of Culture, the All-Union and All-Russian Scientific and Methodological Centres for Folk Creativity and Cultural Activities, and other scientific institutions, institutes of culture and art, libraries, and unions of creative workers.

The bibliographical indexes of new Soviet and foreign literature on culture and art are published in 12 series and are put out in four to twelve issues a year.

The indexes comprise information on books, serial and periodical publications, methodological recommendations, authors' summaries of dissertations, and unpublished documents.

A number of bibliographical indexes are furnished with abstracts.

Only those documents which are important in terms of theory and practice to specialists in the sphere of culture and art, are abstracted and that is why the number of abstracts in the issues vary.

Two information collections «Culture in the modern world: experience, problems, solutions» and «Scientific and technical achievements and progressive experience in the field of material and technical provision of cultural institutions are the main analytical publications. The objective of the collections is

to indemnify for the lack of specialized periodicals devoted to the contemporary cultural process in the country, on the one hand, and to discuss problems of its material and technical support, on the other. The collection «Culture in the modern world» (6 issues a year) offers wide circles of readers materials, which analyse problems and situations, which are common for contemporary culture in general, experience of different countries and regions in the solution of these problems, trends in the development of the theatre, music and fine arts. The collection also covers current-awareness information on the creators of culture, their works and artistic concepts, outstanding events in cultural life (exhibitions, festivals, congresses, new institutions and organizations).

The information collection «Scientific and technical achievements and progressive experience in the field of material and technical provision of cultural institutions» (4 issues a year) and three series of express-information, which appear in the capacity of supplements to it, aim to promote the solution of scientific, technical and practical problems involved with the introduction of the newest achievements of scientific and technical progress into the practice of cultural agencies.

The system of information publications is complemented by the complex of information services offered to a wide circle of scholars and specialists.

These services are rendered through the reference-information service.

The main information services include: retrospective retrieval of bibliographical information by single inquiries in the local and telecommunication modes; preparation and selective dissemination of advance information on new acquisitions in keeping with typical and individual requests of subscribers (the SDI service); the provision of users with data bases on magnetic carriers, which contain abstracts, bibliographical and factographic information; the preparation of thematic files, including the issue of the original documents or copies to users; a translation service; the reading of lectures on themes of culture and art; the organization and conducting of courses for the raising of professional skills for librarians, engaged in the sphere of culture, etc.

The reference-information service is based on the interaction of information bodies in the field of culture and art of libraries, specializing in the humanities, national libraries of the Union republics, research regional libraries and other institutions of culture: museums, educational institutions, research institutes, and theatres. The total number of partners is over 2300. On the one hand, all these services participate in the formation of the information file, which makes up the basis of the automated data bank on culture and art, and on the other hand, these services exploit the file for their own needs. In other words, the users of information production are at the same time generators of the system. The extent to which these information bodies participate in the processes of formation and exploitation of the information system for culture and art, is determined by the level of their technical support and their readiness to engage themselves in information activity. Among the most active parthers in the establishment of a special information system we should distinguish the State Theatrical Library, which has a specialized centre of information on the theatre. This library boasts of rich collections and a system of specialized card catalogues, which contains valuable information of a bibliographical and factographic character. A local data base in the aforementioned subject field, the output of which is used for the preparation of bibliographical indexes and the reference information servicing a wide contingent of users: theatre workers, professors and students of theatrical edicational institutions is being formed. This data base is a component of the integrated data bank on culture and art.

The Scientific Music Library of the USSR State Tchaikovsky Conservatory, which has a specialized centre for musical art, also supports the formation of the local data base. It is based on factographic data, which are being collected by the Library since the 19th centry. Apart from this, the current acquisitions of literature dealing with questions of music represent the source for the filling up of the documentery data base as of a component of the integrated data bank.

The division of labour between the partners is accomplished according to the types of the literature they process, and the language indication with due regard for the acquisition of collections of different libraries. This pooling of efforts permits us to produce an impressive amount of information on a concrete theme, which representatively reflects the domestic and wofld information flow, and lake into consideration the interests of all specialists in this field in the most valuable scientific and pragmatic publications.

The specific character of the acquisition policy of the libraries of the leading museums of the country — the A.S.Pushkin State Museum of Fine Arts, the Research Library of the Tretyakov Gallery, the State Historical Museum, the Hermitage, the Russian Museum and other museums, experts influence on the fullness of the information file offered to users.

Thus, the research library of the All-Union Museum Association «The State Tretyakov Gallery» alone, numbers 354 thous. items, which along with traditional sources include fill es of nemspaper and jounal articles of the pre-Revolutionary period, posters of exhibitions, unique albums, and private collections of well-known figures of the art world. At present preparations of a technical order for the joining of information centres, functioning on the basis of these cultural institutions, with an automated system working in the network mode, are in full swing.

The information system functions both on the All-Union and international levels. The foreing of the USSR in the creation of the informational version of the information centre for culture are the national bodies of countries of Eastern Europe, Cuba and Vietnam, which operate on the basis of national libraries and information centres. The interaction of countries-parthers within the framework of international cooperation support the exchange of information, which reflects literature dealing with culture and art, held in the collections of national libraries. The exchange is realized through the

international communication format and linguistic media, accepted on the international level. Cooperation which rests on the interaction of information services for culture and art within the country and beyong it, to a large extent makes itself known in the process or preparation on information publications. Examples of such joint publications are the information collections «Aesthetic education», «Panorama of cultural life abroad», etc.

The processes of perestroika of all aspects of life of society, which are taking place in the USSR today, have far-reaching consecuences for the sphere of culture, if one reckons with its role and function in the realization of these reconstructions. That this is indeed so is confirmed not so much by the dimensions as by the character and essence of these changes, which affect the entire field of culture — from the sphere of management and organization of creative processes to concrete types and forms of mass cultural activities. For the special informatic system, which appears in the capacity of an intermediary in the comprehension and practical reorganization of the sphere of culture, this presupposes a not less substantial reassessment of principles, content and directions of information activity. Today we see that the system must be raised to a qualitatively new level of development. This is dictated both by the objective needs of culture and by inner reasons, that is to say by the logic of information activity itself. The new conditions in information activity in this field can briefly be described as follows:

1. The high demands now made of the level of information analysis the coming into the foreground of the need in generalized, situational and prognostic information.

2. The substiantial increase of the volume of social and scientific information and the transformation of its quality, brought about by the process of democratization. This information must be processed and used for the satisfaction of the current needs of different categories of specialists and as a basis for the preparation of review- analytical information.

3. The necessity of creating profitable specialized information services and economic types of production in connection with the perspective switch to new methods of economic management. The initial principle of the perestroika of scientific-information activity which is today being realized, is identified with the focusing of attention on the gathering and processing of information characterizing the main processes of development of culture and art. The three priority directions, chosen in keeping with the main aspects of activities in the sphere of culture and art, are, namely, «Culture and art in the process of information of new thinking», «Improvement of processes of management and organization in the sphere of culture», and «Problems of aesthetic education: theory and practice».

Within the framework of the first direction, general processes, which are taking place in culture (and in its different subfields) in connection with the renovation of social consciousness and development, such as the impact of the modern socio-cultural policy, the aggre-gate of problems, involved with the functioning and interaction of different cultures with due regard for the dynamism and diversity of the processes of its differentiation; the most urgent problems of the relationship with modern culture and its historical heritage are analysed. Processes, which are taking place in the sphere of professional creative activities are singled out.

The second direction presupposes the analysis of the formation and development of the social and State principle in the sphere of management of culture and its organization, the changing role and functions of the existing and newly established institutions of culture and art, and the legal, financial and economic problems which arise within this context, etc. The scientific and information development of the third direction is directly connected with the creation and realization of the State programme of aesthetic education. It is envisaged to examine within its framework different aspects of the contemporary system of aesthetic-education activities in society. These three directions will make up the foundation of activities realized within the entire information system on culture in the coming years and all processes and stages of work with the document flow (from the selection of sources, the extraction and folding of data to their integral processing) will be subordinate to this aim.

It is expected that the result of this work will be the creation of a full-fledged, actualized information file on the basis of which review-factographic and problem- orientated data basis will be built up.

Developments in Imaging Technology for Arts Information

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IMAGING TECHNOLOGY FOR ARTS INFORMATION

ABSTRACT

Art libraries freguently include large visual collections of seides photographs and drawings. Typically these repositories are unique collections developed within the institutions where they are housed. Advances in computers, telecommunications and imaging technologies have enabled art libraries to undertake projects to provide access to image collections. Expanding networks among research libraries and museums are making access and transmission of text and images possibie on a broader scale then now possible.

This paper is presented in two parts: First is a discussion of several projects developed in architecture libraries which use video and digital technologies for image storage and delivery. The second part reviews an interface to a Visual information Syatem and points to current and predicted developmen:s which may further extend access to visual arts technology.

DEVELOPMENTS IN IMAGING TECHNOLOGY FOR ARTS INFORMATION

During the 1980s visual collections, archival collections and museums have been looking at new ways to provide access to their often large collections of images. Prototypical projects have been developed employing emerging video and digital technologies for display of images in these collections. Development is now going forward on several fronts to enable visual access to these collections.

Typically visual collections have developed as repositories to serve specific institutions where they are housed. With the development of optical disc technologies such as the videodisc and CD-ROM and digital image capture and storage, interest has appeared to use these formats to display and use more easily collections currently housed in slide and photograph cabinets, in large flatfiles and in museun storage rooms. The imaging technologies — analog video and digital optical — provide an exciting meansfor storing and delivering thousands of pictures electronically. Development imaging vehicles for delivery of images has raised issues ofa whole range of requirements to enable accurate requests and reliable image delivery.

At MIT, the Media Lab and Rotch Library of Architecture and Planning in 1978 an early videodisc was made of nearly 45,000 slides on 20th century art and American architecture. The catalogue records for the slides were out into a searchable database on a computer. It was perhaps the first example of random access and dispay of a collection of library images. Since then the Library has played a part in the deveiopment of 3 further videodiscs-computer database projects, or as they are sometimes called "image-based" projects. The Aga Khan Program images of Islamic Architecture project aimed to make available over 30,000 images from the Programs visual archives. One of its considerations was extensive visual subject indexing for architects and planners. The Boston Architecture Project includes over 7,000 pictures of Boston stored on a videodisc. This project is developed to its pictures to users at graphics workstations in the library and remotely in classrooms on demand made possible by the campus educational computer network, and the campus cable TV. The Boston Suburbs Videodisc links together 7,500 images of suburbs signifikant in the development of Boston, historic photographs and interviews with designers. The interactive interface for this project was developed under "Muse", an educational authoring system developed at MIT.

Other visual initiatives using these imaging technologies important to art libraries. At Columbia University Avery Library 45,000 architectural drawings are being photographed for a videodisc whlle the catalogue records anre being entered into the national research libraries database RLIN. Thes project not only makes the library records for these drawings broadly searchable on a major library bibliographic database, but soon will make the videodisc of the drawings availabie as a visual index.

At the Univetsity of California at Berkeley the image Database Project includes images and database which runs on networked workstations. Collections of scanned images from the art museum, the architecture slide library, the map library and other units are stored in digitized files and deliverable

over the campus neteork.

Optical publishing projects, educational applications for discs and library visual indexing applications have proliferated in the past few years. Major museums including the Louvre, the state museums of the USSR, the National Gallery in Washington DC have published their collections on disc. The Library of Congress and one major magazine. The National Geographic have each stored more than 200,000 images on videodiscs to enable visual indexes to these extensive image collections. All of these large picture collections on disc do the job of making more widely available the contents of their justly famous collections.

During the past few years the growth of electronic networks has expanded the potential for sharing text. As these networks are extended and increase in power we will be able to transmit not only text files — but, in due course, images as well. In recent experiments digitized picture files were transmitted from Columbia's Avery library to the Library of Congress. Another experiment employed the UC Berkeley "ImageQuery" system to enable users in at the Smithsonian institution in Washington, D.C. to query and retrieve images from the Berkeley/Stanford University computer over a very fast network.

These demonstrations hold promise for the future of communication of arts information. They also point out the need for development of standards — for encoded catalogue information as well as for digital transmission. Together with exploring the potential of imaging technologies for the arts, art libraries and visual collections are also looking at standarts for format, terminology, visual indexing and shared authority files to make access to the world of images possible.

Light Table: An interface to Visual Information Systems.

"A picture is worth a thousand words" is a maxim of lond standing, which has recently been given a fresh impetus when three previously discrete technologies, optical disc, networks and computer workstations were combined to creste a new application, — the VIS (the Visual Information System). This combination of videodiscs with interactive database and enetworking technology is beginning to do for visual information what has alreaby been accomplished in the worid of text for catalogs, online bibliographic files and full-text search systems.

Many VIS (Visual Information System) are being implemented in those disciplines and professions, where the image has a special significance, for example in architecture and planning, in graphic and fine arts, in biology, in medicine and in photography. The case stugy for the presentation is the "Light Table" project (Purcell PA et al. 1990).

A primary aim of the Light Table project, was to see if this new conjunction of technologies could make a major referencing facility, such as the visual collections of MIT's Rotch Library available to a campus-wide communify of student users. An associated interest on the part of the project was to investigate the technology's capacity to create a much more responsive and versatile systems for searching hundreds of thousands of stored images than which presently obtains using conventional methods.

In conclusion the paper looks at some current and predicted developments in the technology of visual information systems, such as the growing conversion to digital representation of image banks. For example, it will be quite possible that most image retrieval will occur on our TV sets of the future, with the added facility of generating a hardcopy plot of that image from the same TV set. Also these future images may be more than just still frames. They may very well include clips of reguested video, stereoscopic images and even digital holograms.

Art Libraries in Cooperation: the Art and Architecture Program Committee of the Research Libraries Group

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ABSTRACT

Today in the United States, a group of 43 art and architecture libraries from the major universities and art museums are joined together in an on-line bibliographic network. Through this network they share their collections and collaborate on group projects to increase access to art information in all formats. These 43 libraries comprise the Art and Architecture Program Committee (AAPC) of the Research Libraries Group. The bibliographic network, RLIN, is the means through which these libraries share information about their collections, access specialized art databases, and communicate with each other through electronic mail to work on group projects. Some on-going AAPC projects are: the shared acquisitions and cataloging of exhibition catalogs; art serials preservation project for rare and embrittled materials; retrospective conversion; training for use of RLIN for art reference; interlibrary loan and in-depth interlibrary reference service; distributed cataloging of auction catalogs in the SCIPIO special database; encouraging the use of the Art and Architecture Thesaurus for added subject description on bibliographic records in RLIN; building the special database, The Avery Architectural Index; and recommending additional art related sources to be included in RLIN.

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Introduction

Today in the United States, group of 43 art and architesture libraries from major universities and art museums are joined together in an on-line bibliographic network. Through this network they share their collections and collaborate on group projects to increase access to art information in all formats. These 43 libraries comprise the Art and Architecture Program Committee of the Researsh Libraries Group. The bibliographic network, RLIN (The Research Libraries Information Network), is the means through which these libraries share information about their collections, access specialized art databases, and communicate through electronic mail to work on group projects. The RLIN database currently contains over 45 million bibliographic records.

This paper will touch on the history and structure of the Art and Architecture Program Committee (AAPC), and its parent organization, the Research Libraries Group. It will also describe the relationship between the AAPC and the Art Libraries Society of North America. The focus of the paper is how the member libraries share information through RLIN. This will be followed by a description of the three special art information databases and some of the major cooperative projects of the AAPC. The way the Reference Sub-Committee worked is presented as an example of the way the

task-oriented sub-committees carry out projects.

History of the AAPC

The Research Libraries Group was founded as a non-profit consortium of major research libraries in 1974, "to advance education and scholarship for the benefit of the research community at large, as well as the constituencies of member institutions." The four original members were Harvard University, Yale University, Culumbia University, and the New York Public Library. One of RLG's initial objectives was the creation of RLIN, which would allow for the pooling of resources. There are 106 member institutions in the Research Libraries Group who add records to RLIN as they catalog their collections. Records for books, serials, slides, photographs, periodical articles, auction catalogs, manuscripts, sound recordings, and other types of materials can be found through boolean search techniques. Some ways to search are by personal name, corporate name, title word, title phrase, subject word and subject phrase. The mission of RLG today is "to indentify and solve problems of information creation, collection, and access which are best carried out by cooperative solutions."[1]

The Subject Programs

RLG created subject programs to bring together libraries with common interests. The current subject program committees are: Archives, Manuscripts and Special Collections; East Asian Studies; Jewish and Middle Eastern Studies; Law; Art and Architecture.

The Art and Architecture Program Committee (AAPC) is one of the oedest and most active of these programs. It was founded in 1979 when the art librarians from the member institutions got together to establish an official forum for cooperative activities relating to art and architecture. Later that year, several art museum libraries were inivited to participate.[2] These included the Art Institute of Chicago, Cleveland Museum of Art, Metropolitan Museum of Art, and the Museum of Fine Arts, Boston. Today the AAPC is composed of 14 university libraries and 28 museum, historical society, and art school libraries.

The Relationship of AAPC to ARLIS/NA

All of the librarians who serve as institutional representatives on the Art and Architecture Program Committee are members of ARLIS/NA (the Art Libraries Society of North America). However, only a portion of the ARLIS/NA membership belongs to the AAPC. Both organizations are important to art librarians, but their membership requirements, goals, and basic machanisms are quite different.

Individuals comprise the main body of the membership of ARLIS/NA, whereas membership in the AAPC is strictly institutional. The goals of ARLIS are primarily directed toward continuing education for art libraries. The AAPC's major activities center on sharing information through RLIN, and carrying out various collaborative projects.

ARLIS/NA is a proffessional organization run primarily by its volunteer members, with the assistance of two paid staff. The AAPC, on the other hand, had behind it the staff of the Research Libraries Group, numbering over 100 employees, with one full-time program officer devoted to the workigns of the Committee. The staff at RLG perform services ranging from publishing newsletters, manuals, and reports to maintaining the RLIN system.

The main activity of ARLIS transpires at its annual conference, which lasts for one week. The conference consists of numerous sessions which focus on different aspects of art librarianship. In contrast, the activities of the AAPC tend to be more project-oriented, operating out of year-round task forces and sub-committees. Because the subject interests of the AAPC and ARLIS/NA are so similar, the two groups hold their annual meetings at the same location, and only a day apart.

Shared Information through RLIN

RLIN provides opportunities for shaing information in many different ways. Member libraries use RLIN for shared cataloging and interlibrary loan. Other special features in RLIN for sharing information are the Conspectus on-line and the use of electronic mail system for in-depth reference service to member libraries.

Through the interlibrary loan system in RLIN, requests are sent and received almost instantaneously on-line. Materials are shipped from one library to another using the United Parcel Service, and often arrive within one week of the request. RLIN libraries have agreed not to charge each other for interlibrary loan service, which greatly simplifies the process.

The AAPC libraries share resources by allowing on-site access to researchers from member institutions and by providing in-depth long distance reference through the mail, electronic mail, or by telephone. Rare, fragile, or otherwise non-circulating materials can sometimes be consulted this way, enabling a scholar to carry out research that would otherwise require travel to another city.

Another way that AAPS members share information in RLIN about their collections is through the Conspectus On-line. Each library contributes a profile of their collections, indicating the range and depth of collecting by specific subject category. For the Art and Architecture Conspectus, the subjects follow the library of Congress classification scheme for the N schedule. By calling up any of the sub-

ject categories included on RLIN, one can see at a glance which libraries have particularly strong collections in that area. The Conspectus shows both the retrospective strength of a collection, as well as its current collecting activity.

The Conspectus is also used as a collection development tool. For an individual library, it clearly shows areas of a collection which are weak, and may be targeted for development. Comparing rusults of the Conspectus survery with other member institutions can demonstrate to administrators the need to increase acquisition budgets. For example, the librarian can show the administrator that they are only level 3 (instructional support level) in a subject that is supposed to support graduate level study, while institution X offering the same program has a level 5 (comprehensive level) collection. The Conspectus profile of an institution can also provide evidence of specific needs, or show areas of collection strength, for grant proposals.

The Conspectus provides a mechanism for measuring collective resources, as well as resources of an individual institution. The Conspectus can be used by libraries to split up responsibility for collecting in depth in certain areas. Primary collecting responsibilites were established in the early days of RLG. The founding libraries made commitments to support certain subject areas. This aspect is significant in light of the enormous increase in publishing in the last ten years which has made it impossible for any one library to collect comprehensively in all but the narrowest of subject areas. [3]

The ability to see at a glance where the gaps in collecting occur within a subject program enables the recruitment of libraries for membership to help fill in the gaps. For example, when the AAPS found that it was weak in the area of American decorative arts, the Winterthur Museum Library was recruited. Because of the already remarkable strengths of member collections, the AAPS taken in aggregate has been referred to as the de facto "National Art Library."[4]

Special Art Information Databases in RLIN

One of the main goals of the AAPC is to develop and share resources critical to the needs of students, scholars and curators in an on-line environment. There are three art related special databases in RLIN: SCIPIO (The Sales Catalog Index Project On-line), the Art and Architecture Thesaurus, and The On-line Avery Index. Both SCIPIO and Avery are the products of AAPC members.

SCIPIO is unique to RLIN. It is the only comprehensive database of bibliographic records for auction catalogs; it strives for complete retrospective and current cataloging for this type of material. Through the SCIPIO file, one has rapid bibliographic access to over 100,000 auction catalogs which span from 1599 to the present. The participating AAPC institutions have split up the responsibility for cataloging retrospectively by date and country. For new sales catalogs, the AAPC members have similarly divided responsibility by auction house, and have agreed to catalog an item within a week of its receipt. In 1990 the database was opened up to all members of the AAPC to use as a union catalog for auction records.

The Art and Architecture Thesaurus was added to RLIN in April of 1990 as an on-line authority file. This source offers a controlled vocabulary of art and architecture terminology with over 60,000 main and lead-in terms for topical subjects in the field of art and architecture. It is the culmination of a seven year collaboration between art historians, architects, librarians, visual resource curators, archivists, museum personnel, and specialists in thesaurus construction. The AAT attempts to cover the whole range of fine and applied arts. In the world of art, this is a major breakthrough. Such a system of description can be applied to a wide range of subject: art objects, architectural drawings, photographs, books, journals, and reproductions of works of art, to name but a few.

Use of the AAT adds the potential for a level of specificity not possible through the use of other standard subject headings such as Library of Congress subject headings. For example, an AAT subject heading could be: Chair — Wood — Painted — Blue — Nineteenth century, whereas in Library of Congress it would be simply Chairs. To help establish guidelines and examples for use, AAPC catalogers began working with the thesaurus to describe art books in a pilot workshop in June of 1990. From that workshop, a compendium of examples was begun.

The Avery Index to Architectural Periodicals in RLIN provides access to analytical entries from over 1,000 periodicals in Western languages in the fields of architecture, architectural history, landscape architecture, city planning, historic preservation, and interior design. It was started as a card file in the 1930s which analyzed the periodical holding of Columbia University's Avery Architectural Library. The database was craeted and is maintained by the Avery staff, which has been sponsored by the Trust since 1984. [5]

Art related information can be found in other databases in RLIN. The Research-in-Progress Database contains the National Gallery of Art's Sponsored Research in the History of Art. Other potential candidates for inclusion in the RLIN database are: Inventory of American Sculpture, and The Critical Inventtory of the Program for Art on Film. Other candidates recommended by the sub-committee are: Census of Ahtique Art and Architecture known to the Renaissance, Computer Index of Classical Iconography, Bibliography of the History of Art (the new version of RILA and the RRA), Princeton's Index of Christian Art, The Getty's Conservation Information Network, and The Met's Clearinghouse for Art Documentation and Computerization.

Cooperative Projects

The AAPC carries out cooperative projects in several areas. Three major areas of collaboration are: 1) collection development, 2) preservation, and 3) bibliographic control.

Under collection development, the Art and Architecture Conspectus discussed earlier is a major component. Another ambitious cooperative undertaking is the art exhibition catalog shared acquisitions and cataloging project. Exhibition catalogs are important primary source materials in art scholarship. The project is quite similar to the distributed cataloging of auction catalogs in SCIPIO, but instead of residing in a special database, these bibliographic records are entered directly into the main files of RLIN. The participating libraries agreed to split up the responsibility for seeking out the publications from art museums in the United States, and to catalog them into RLIN as quickly as possible. More than 250 art museums and galleries in North American are covered. Because so many of the art museum libraries already had formal publications exchange with other museums, it was fairly simple to get it started. The project has been in operation for five years, and the RLIN database is by far the best source for bibliographic records for exhibition catalogs published in the U.S.

Preservation of library materials of research value to the art and architecture community is high on the list of priorities of the AAPC. The National Endowment for the Humanities (NEH) has funded the art serials preservation project intiated by the AAPC which will microfilm approximately 75 titles (2,000 volumes) of rare and endangered art periodicals from the 19th and 20th centuries. These titles, owned by nine members of the AAPC and the Library of Congress, were selected in consultation with scholars and from seminal bibliographies in the field.

Under the heading of bibliographic control, the AAPC supports retrospective conversion (recon) of its members to ensure quick and accurate access to the complete resources of the membership. Since RLIN did not exist before 1974, an on-going concern of the AAPC is for member libraries to input their older records into RLIN which currently exist only in the form of catalog cards. Many items which are owned by member libraries are not indicated in the database. Therefore, retrospective conversion is necessary to create a complete union catalog of AAPC holdings. RLG has encouraged recon projects with reduced rates, minimal record standards, and development of a system to batch records off-line and run them against the database for matches.

How the Committee Works: An Example

Projects are largely carried by task-oriented working groups. One such working group, the Art Reference Sub-committee, was formed in 1988 to increase awareness of RLIN as a public services tool. For over a decade, catalogers and technical services staff members had been entering data into RLIN. In fact, they had become quite adept at finding information in RLIN to fulfill interlibrary loan requests and compiling bibliographies on an author or a particular subject. The reference librarians, however, had not had the exposure to RLIN to develop their facility searching the database, or to make them aware of its use as a reference tool.

The chair of the Art Reference Sub-committee sent out a survey to AAPC members to determine their interest in a workshop. The sub-committee organized a brain-storming session for the following ARLIS conference, which laid the groundwork for the construction a training workshop. The sub-committee learned to work together even though they were located in different states, including New York, New Hampshire, Ohio, Texas and California. Information, ideas, and examples for use in the workshop were exchanged through conference calls, fax, U.S. mail, Federal Express and electronic mail in RLIN. With leadership from the RLG Program Officer, the sub-committee developed the plans for the first "hands-on" workshop for AAPC members to teach the use of RLIN for art reference that took place at New York University in February of 1990. Workshop participants were given classroom instruction with workbooks, in addition to actual on-line instruction. The workshop was so well received that ARLIS/NA offered to co-sponsor with the AAPC an updated version of it for the 1991 ARLIS/NA program. The new workbook was distributed with a tutorial diskette for use on a personal computer.

Conclusion

The Art and Architecture Program Committee of RLG has come a long way since its inception in 1979. The size of the group increased from four institutions to forty-three; the groups' projects took the form of an official goals and projects document; the group's activities attracted membership interest from many U.S. and several international institutions. The members of the subject program have gained a great deal from this forum for sharing ideas, concerns, and information. As a group, major issues in the profession have been addressed and action taken to solve them. The concerns have changed over time from the particulars of cataloging standards, to the more theoretical ideas of creating a "national art library". Through cooperative projects and resource sharing through RLIN, the whole has proved to be much greater than the sum of its parts.

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5. Muratori, Fred. "RLIN Special Databases: Serving the Humanist," Database, October 1990.